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ON THE

HÆMORRHAGIC DIATHESIS: ANGIO-STAXIS.*

BY H. LETHEBY TIDY, M.D. OXF., F.R.C.P. LOND.,

PHYSICIAN, ROYAL NORTHERN HOSPITAL; AND ASSISTANT PHYSICIAN, ST. THOMAS'S HOSPITAL.

THE existence of a hæmorrhagic diathesis is generally accepted but the term is little used in medical literature. Patients come under observation suffering from various types of hæmorrhage and from forms of anæmia for which it is frequently difficult to find a definite diagnosis. Often such cases are finally entitled "primary purpura" or simply "severe anæmia." Such well-recognised entities as leukæmia, acholuric jaundice, hæmophilia, and congenital syphilis are not referred to here, nor are cases where the symptoms are secondary to some other cause such as sepsis. We shall be considering the shadowy group of primary purpuras and hæmorrhages from the mucous membranes. Purpura is the predominant manifestation but the clinical variations are innumerable.

The types of primary purpura usually described in text-books in the past are: (1) purpura simplex, (2) purpura rheumatica, (3) Henoch's purpura, and (4) purpura hæmorrhagica.

Single cases appear in the literature with very varied blood pictures under titles such as "acute purpura," "recurrent hæmaturia and severe anæmia," "purpura hæmorrhagica," "chronic purpura hæmorrhagica," "chronic purpura hæmorrhagica without skin lesions," "hereditary purpura," and many others; and also in recent literature as "essential thrombopenia," "aleukia," and various titles relating to changes in the platelets and the effects of splenectomy. The question is how far these are to be regarded as separate conditions or as various grades and stages of the same entity.

CLINICAL ASPECT.

Two clinical features which have attracted much attention in the past are joint pains and abdominal pains. The classification of primary purpura given above largely depends on these features, but little attention is paid to them in recent writings. Joint pains are a feature of nearly every case of purpura of more than the slightest severity, and hence do not justify the separation of a special group. Henoch's purpura, however, will for the present be left out of consideration as it appears probable that escape of fluid from the vessels, apart from the solid constituents, is a special feature of this type, which thus justifies the term, "anaphylactoid" purpura, used by the French.

No two accounts agree as to the characteristics of purpura hæmorrhagica. On such points as the size of the spleen, the number of the white cells and changes in the bone-marrow, the accounts are vague and usually incomplete. The clinical points apparently relied upon for diagnosis are the severity of the symptoms and the occurrence of hæmorrhage from the mucous membranes, especially the gums. It is remarkable how many writers ascribe great importance to hæmorrhage from the gums. It is clear, however, that the diagnosis usually rests clinically on the severity of the hæmorrhages.

Now it is possible to trace, not only in different individuals, but sometimes even at various periods in the same individual, every grade between purpura simplex and purpura hæmorrhagica. There are families in which one member exhibits slight chronic purpura alone, another member hæmorrhages which may be confined, for example, to hæmaturia or epistaxis, while yet another member may exhibit the severer types.[1] Cases also occur where an individual may at one time pass through severe and dangerous attacks and then for long periods exhibit mild grades of purpura or perhaps epistaxis or hæmaturia alone. Several cases were recorded by Osler,[2] but, in fact, in varying degrees they are by no means uncommon in practice. In such cases no dividing line can be drawn between different types and groups, and the manifestations are evidently those of the same entity occurring in varying grades of severity.

Recently a separate group of purpura has been described under the title of "Essential Thrombopenia" or Thrombocytopenia." Frank,[3] who is responsible for this, definitely stated that he considered the entity as identical with what has been described as purpura hæmorrhagica in the past. It appears from a study of his cases (and still more from those of other authorities described under this title) that he includes grades far less severe than would have been classified clinically as purpura hæmorrhagica. The justification of such an entity, therefore, cannot rest on the clinical manifestations and must depend on features in the blood, which will be referred to subsequently. This is a question of special importance, since it is widely stated not only that splenectomy is indicated in this group, but that it should be performed in no other type. The study of cases published recently by authors other than Frank under this title with successful results from splenectomy show that they have drifted, and in my opinion correctly so, still further from cases which would have been diagnosed in the past as purpura hæmorrhagica, and it is doubtful whether some of them would have been accepted originally by Frank as his entity on clinical or even on hæmatological grounds. The cases now being regarded as purpura hæmorrhagica or essential thrombopenia are mainly those that in the past would have been regarded as severer or more chronic forms of purpura, but not of the severity which used to justify the term purpura hæmorrhagica; many would have been placed in the group of purpura rheumatica. Clinically there is no definition which will differentiate them; they do not correspond to a separate type but only to a certain grade of severity. As evidence of the unity of the various groups, a recent statement of Kaznelson[4] may be quoted to which Bruce Williamson[5] has referred, "that the effect of surgical treatment in this case was to transform purpura hæmorrhagica into purpura simplex."

It is evident that no clinical distinction except degree of severity can be drawn between these various forms with the exception, perhaps, of anaphylactoid purpura.

EFFECT OF CAPILLARY HÆMORRHAGES ON THE BLOOD AND HÆMOPOIETIC TISSUES.

The Bone-marrow.

It may be accepted in general, without entering into details, that the marrow supplies red cells, polymorphonuclear leucocytes, and platelets.[6] The response of the marrow to the escape and loss of blood from the vessels and to the resulting demand for replacement will vary with the severity, the frequency of the occurrence, and the acuteness or chronicity of the hæmorrhages. The effect on the bone-marrow may be summarised as follows:—

1. *Sudden Severe Demand.*—The marrow and hæmopoietic tissues, though normal at the time, may be unable to supply from its reserves sufficient cells to maintain life; other changes have not time to occur. Thus in the extreme types recorded as "acute purpura hæmorrhagica or "purpura fulminans," the marrow at autopsy rarely shows any definite changes. It may be noted that the colour and apparent extent of the red marrow present in all these conditions is influenced by (1) the actual amount of red marrow tissue present, (2) the degree of anæmia and consequent

* Based on the annual Hunterian oration (1925) of the Hunterian Society.

pallor, and (3) hæmorrhages into the bone-marrow itself which may closely simulate red marrow tissue, and give the appearance of an increased area and activity.

2. *Milder Grades of Hæmorrhages.*—The marrow may be able to cope with these losses sufficiently for life to continue. The output may be insufficient completely to replace the losses, and various degrees of anæmia and of deficiency of platelets may be directly due to this cause. There is little direct evidence of the state of the bone-marrow in such stages, but apparently it may be in varying grades of slight hyperplasia or anaplasia.

3. *Repeated Hæmorrhages.*—These may continue to be just a little more than the marrow can replace, until finally chronic exhaustion occurs and the marrow becomes aplastic. As repeated severe demands would lead to rapid failure, as in Group 1, it would be expected that in this group the hæmorrhages cannot be very marked, at least until the terminal stages, and clinical records are consistent with this. The patient is indeed more anæmic than purpuric, a condition often observed in childhood. With aplasia or with the slighter condition of anaplasia there will be diminution even of the normal supplies of cells, and this at a time when the demand is greater than normal.

Effects on the Spleen.

The functions of the spleen as regards the blood fall under three main headings: 1. Action as a reservoir. 2. Destruction of defective cellular and formed constituents. 3. Formation of lymphoid cells.

(1) The action of the spleen as a reservoir for the blood has been emphasised by Barcroft and his co-workers.[7] It is evident that a normal spleen during life holds a considerable amount of blood in reserve.

(2) It may be accepted that the spleen will destroy cells which are below a certain standard, either from senility or defective production. Unfortunately we have no means of judging when red cells are effete. In the hæmorrhagic conditions it may be expected that the marrow will produce a higher proportion of defective red cells when working under unusual demands. In any case the spleen will be destroying red cells which could partially function and in the circumstances be of advantage to the organism. This undoubtedly occurs in acholuric jaundice and is the reason for the benefit of splenectomy. The position with regard to platelets will be similar to that of the red cells.

Whether the spleen enlarges or not will depend on the absolute number of effete or defective cells to be dealt with and not on their proportion to the total. When the marrow is aplastic and the red cells constantly number, say, 1,000,000 per c.mm., the total work for the spleen may be less than normal, and there is no reason why the spleen should enlarge; in fact, it is rarely palpable in these cases. In acute severe forms of hæmorrhage the action of the spleen in dealing with the débris of cells from the hæmorrhages may be a factor in producing enlargement of a spodogenous nature; in these cases the spleen may or may not be palpable, but usually becomes so if a very severe condition lasts for a few days. It has often been observed in severe cases that the spleen becomes palpable as the condition improves and the number of circulating cells increases.[8,9] The spleen, therefore, is not usually palpably enlarged in the mild or in acute conditions, or when the number of red cells is very low. It is most often palpable in cases of moderate severity. When palpable in severe cases the enlargement may have occurred previously. It has to be considerably enlarged before it becomes palpable. In this group of conditions it is rare for the size to exceed one or two finger-breadths below the costal margin. Thus the enlargement is very variable and the question whether it is palpable in a given case is a matter of comparatively little importance. A marked enlargement is, however, of importance as indicating that the case probably does not belong to the hæmorrhagic diathesis.

(3) It is clear that in this condition, as in others, the production of lymphocytes suffers less than does that of other cells. Little else can be said as to lymphocytes and the lymphopoietic tissues, since unfortunately we know practically nothing as to the life, death, or functions of these cells.

Changes in the Blood Cells and Hæmoglobin.

These will depend on many factors, such as the condition of the bone-marrow, the chronicity of the hæmorrhages, and their severity at the period of observation. With sudden severe purpura and hæmorrhages there is necessarily a very rapid fall in the number of red cells and an equivalent or greater fall in the percentage of hæmoglobin, the reserves being exhausted and the amount of replacement being small. There is usually also a fall in white cells, especially polymorphonuclears, no doubt because the marrow is more greatly affected than the lymphoid tissue. This results in a leucopenia with a relative lymphocytosis. The percentage of lymphocytes may rise to 60 or 70, or higher.

In the chronic forms, characterised usually and almost necessarily by the less severity or even slightness of the obvious hæmorrhagic manifestations, there is usually a persistent marked reduction of the number of red blood cells. With this there is often a leucopenia with relative lymphocytosis, which may be ascribed to anaplasia or aplasia of the bone-marrow; in such cases the tendency to improvement between exacerbations and under treatment is certainly less than in those with a leucocytosis.

The effects of the hæmorrhagic diathesis may give a blood count suggesting or even identical with lymphoid leukæmia. Cases have been recorded in the literature in which the polynuclear cells have been entirely absent, and the diagnosis of lymphoid leukæmia[10] would certainly have been made had not the patient recovered. If hæmorrhages are also present, there does not appear to be any method by which the two conditions can necessarily be distinguished, either clinically, pathologically, or hæmatologically. Probably some of the cases diagnosed as acute lymphoid leukæmia but without any glandular enlargement are really of this nature.

In the cases of moderate severity the number of red cells in a quiescent period may be normal or nearly normal, or it may be reduced in varying extents, and this reduction is naturally increased during any exacerbation. The leucocytes may be, and in moderate chronic cases frequently are, definitely increased with a high percentage of polynuclear cells; this is evidence of activity of the bone-marrow and no case with such a white cell count need be despaired of. Since the changes in the number and percentage of the various cells must depend on so many factors, it is not surprising to find that there is no constancy in the changes. Practically every combination may occur of (*a*) changes in the number of red cells, with (*b*) leucopenia or leucocytosis, and (*c*) increased percentage of lymphocytes or polynuclears. Rapid variations may also occur in the number of the cells. The hæmorrhagic diathesis accounts for many of the cases which appear in the literature with blood counts which do not fit into any of the recognised entities. These are especially common among children and leads to the attempt to make many classifications on different bases and to many disputed diagnoses.

The changes in the percentage of hæmoglobin follow in general the changes in the number of red cells. There is the usual tendency of hæmoglobin to form more slowly than the red cells, a reduced colour-index resulting, but this is less constant than in most anæmias, and the colour-index may be nearly normal. The morphological changes in the cells are only those which would be expected to accompany the changes already referred to. In the cases associated with marked anæmia there may be anisocytosis and poikilocytosis and, less commonly, such changes as

polychromatophilia and punctate basophilia, but these may be completely absent and the red cells appear normal even in severe cases. Normoblasts in small numbers are not uncommonly found, but megaloblasts are very rare and practically confined to cases in children. With leucocytosis a few myelocytes or doubtful myelocytes may be present. There is no alteration in the fragility of the red cells.

Platelets.

The normal number of platelets in the blood may be taken as 200,000 to 300,000 per c.mm. The estimation of the number is subject to a large margin of error, and only large variations can be definitely recognised. It is, however, apparent that the number of circulating platelets is very susceptible to factors influencing them, and it may vary with great rapidity.

It may be accepted that the function of the platelets is concerned with preventing the escape of blood from the vessels, and that in fulfilling this function platelets are withdrawn from and lost to the circulating blood. Hence in hæmorrhagic conditions the number of platelets is influenced first by the group of factors already discussed, which affect the red and white cells, including the chronic and immediate extent of the hæmorrhages, and the condition of the bone-marrow and spleen; and, secondly, by an additional factor, the withdrawal or consumption of platelets resulting from their attempts to check the hæmorrhages. It has long been known that there is a marked decrease or even complete absence of platelets in cases of hæmorrhage of the type of purpura hæmorrhagica. It must, however, be emphasised that a reduction may be present in any case with purpura and hæmorrhages, whatever the origin may be. It may almost be said that they must of necessity be diminished in the circulating blood when capillary hæmorrhages are severe. Hayem pointed out that reduction in the number of platelets occurred even in secondary purpura, but the statement that reduction is confined to purpura hæmorrhagica has been copied from one book to another. They are also reduced to the neighbourhood of zero when the marrow is aplastic, whatever may be the cause of the change.

In less severe forms of the hæmorrhagic diathesis the number of platelets shows changes of the same nature as the red cells, though always with a greater response to the occurrence of purpura and hæmorrhages and the greater tendency both to rapid variation and to diminution. The number may be within normal limits in the quiescent periods of moderate cases. This may be so even in conjunction with some grade of anæmia. The number is more frequently below normal and may be at any point, depending no doubt on the factors mentioned above. It is common to see the figure in the neighbourhood of 100,000 per c.mm.

In cases of the hæmorrhagic diathesis, the number of platelets may thus be anywhere between normal and zero, and no definite line can be drawn at any point which will divide the cases into separate groups or entities. Nor will a count of platelets serve to distinguish "primary" from "secondary" purpuras. Neither clinically nor from a study of the blood-cells and platelets can any distinction be drawn, except in severity, between the various manifestations of the hæmorrhagic diathesis.

COAGULATION TIME AND CERTAIN OTHER PHENOMENA.

1. *Coagulation Time.*—When tested by recent methods the coagulation time in the hæmorrhagic diathesis is within normal limits. By Wright's method it is often difficult to say at what point the blood has clotted. For a considerable time it may be in a sticky state when it can just be expelled from the tubes. Coagulation may commence within normal limits but not proceed normally, and clotting may not be completed for a considerable time. This is probably the explanation of many cases in which prolonged coagulation times have been recorded in the past; the diagnosis between hæmophilia and the hæmorrhagic diathesis may thus be obscured. It is remarkable that this is especially observable in German literature where the distinction between the two conditions usually does not appear to have been clearly recognised until recently. The phenomenon differs entirely from hæmophilia, in which the onset of coagulation is delayed but clotting proceeds normally when it commences. The modern methods of estimating the coagulation time will clearly distinguish hæmophilia.

2. *Prolongation of Bleeding Time.*—When the hæmorrhagic diathesis is active the bleeding from a prick, if the blood is dabbed off at half-minute intervals, continues for many minutes or even long periods, instead of ceasing in the usual normal time of one to three minutes. This prolongation of the bleeding time may be very marked, but in quiescent periods it is usually absent. It is an interesting feature in the hæmorrhagic diathesis, but bleeding time is a very variable manifestation and may be prolonged in other conditions, especially with anæmia and too much importance should not be attached to it.

3. *Capillary Resistance Test.*—Partial constriction of the arm by a band may produce a crop of petechiæ. This is an interesting phenomenon, but, like the preceding test, it is usually absent in quiescent periods.

4. *Failure of Clot Retraction.*—When blood from a case of the hæmorrhagic diathesis in the active state is allowed to clot in a tube, the clot which forms often does not retract and express the serum normally. This phenomenon is not uncommon in many other conditions and is familiar to every worker in serum.

It may be said of the above tests that they add little definite information except in the valuable distinction from hæmophilia.

CAUSE OF THE HÆMORRHAGIC DIATHESIS.

The essential manifestation of the hæmorrhagic diathesis is the escape of blood through the walls of the capillary and small blood-vessels. The cause of this is at present in doubt; it must lie initially in some abnormality either of the blood or of the wall of the blood-vessels.

Attention has lately been especially directed to the influence of the platelets, and it is generally accepted that they have some action in preventing capillary hæmorrhages. Duke[11] ascribed this to their property of adhering rapidly in masses to the wall of a blood-vessel at any point where the endothelium is injured or unduly permeable, the initial lesion of the hæmorrhagic diathesis thus being placed in the vessel wall. Frank[3] believes that the platelets are primarily concerned with coagulation, and that the hæmorrhages are due to defects of clotting when the circulating platelets are reduced in number. He has described a syndrome of "essential thrombopenia," which he considers to be a true disease, a "sharply circumscribed clinical entity," and in which the reduction of platelets is the primary event. None of the characteristics given distinguishes "essential thrombopenia" from other forms of purpura otherwise than as a grade of severity, and the view that a separate disease can be carved out of the primary purpuras on these grounds should be abandoned. There is definite evidence that reduction in the number of circulating platelets is not the essential cause of the hæmorrhages. Brill and Rosenthal[12] removed the spleen from a patient with hæmorrhages in whom the blood showed a great reduction in the number of platelets. Subsequent to the operation the platelets fell to 1000 per c.mm., but the hæmorrhages had not returned. Other observers have had similar results. Bedson[13] has carried out extensive experimental investigations on platelets in animals, and he has produced a serum which will reduce the platelets to zero without the occurrence of any hæmorrhages. It appears clear that variations in the number of the circulating platelets are not the initial factor in the primary purpuras.

It does not appear possible that changes in the blood-cells are the cause. Every variation may be observed and there is no constant change. Neither leucocytosis nor extreme leucopenia[6] are necessarily associated with hæmorrhages. No abnormalities have been distinguished in the blood which are comparable to acholuric jaundice or hæmophilia.

It has been suggested that the spleen may act in some manner on the blood rendering passage through the vessel walls abnormally easy. This explanation is negatived by the fact that hæmorrhages may recur after splenectomy.

By the process of exclusion we are led to the view that an abnormal permeability of the blood-vessels is the essential factor, but there is little direct evidence. Bedson[14] watched under the microscope the mesenteric vessels of an animal rendered hæmorrhagic experimentally by injections of certain sera. He states that "the majority of the hæmorrhages appear to form by an exaggerated form of diapedesis." On microscopic examination of the tissues "the endothelium appears swollen and œdematous, the cells standing off the vessel walls." Bedson also produced hæmorrhages in animals by the use of two different injections, the first designed to injure the vessel endothelium, and the second producing a reduction in the number of platelets. Neither of these caused hæmorrhages when employed alone. As reduction of platelets alone does not result in hæmorrhages, it would appear that the essential factor is injury to the vessel endothelium.

The evidence brings us back to the view expressed by Duke many years ago that the essential factor in primary purpura is an abnormal permeability of the endothelium of the small vessels. The function of the platelets is to adhere to such permeable sites and prevent the escape of blood. In so doing the platelets are withdrawn from the circulation. The greater the reduction in their numbers, the greater will be the possibility of blood escaping from unprotected points. Any condition, such as aplasia of the marrow which causes a diminution of platelets, places the body in a susceptible state ready for hæmorrhages to occur, and increases the tendency if already present.

Such a view brings the primary purpuras into a line with conditions characterised only by escape of the fluid portions of blood. The term "angiostaxis" may be suggested to include the primary purpuras and the various manifestations of the hæmorrhagic diathesis.

THE EFFECTS OF SPLENECTOMY.

Kaznelson[15] first performed splenectomy in a case of purpura hæmorrhagica in 1915. Since then numerous cases have been reported.

Whipple[16] has reviewed over 80 cases. In very acute cases the mortality has been very high, but excluding these unsuitable conditions the immediate mortality does not exceed 10 per cent. No doubt some fatal cases have not been recorded, but the results of series suggest that with greater familiarity with the operation the mortality will tend to fall. The beneficial results in the surviving cases are undoubted.

Bedson[17] has investigated in animals the effect of splenectomy on the production of experimental purpura. His results show that: 1. The number of platelets rises after the operation and returns in a few weeks to its previous figure. 2. Increased protection against a hæmorrhage-producing serum is present while the number of platelets is increased. The protection is only comparative and is lost when the number returns to normal. 3. After a few weeks the animal has returned to the statu quo ante, other tissues having taken on the functions of the spleen.

In the hæmorrhagic diathesis in the human being the important effects of splenectomy may be summarised as follows: 1. The number of platelets rises almost immediately. After a varying lapse of time it may fall again to the previous level. 2. The hæmorrhages diminish or cease immediately after the operation. 3. Recurrences may take place, but rarely to a severe degree.

The result of splenectomy may be partly explained by reference to acholuric jaundice, in which it is agreed that the marrow is primarily producing a high proportion of red cells which are not perfect, but which are able to carry out their functions to a useful degree. Owing to their imperfection they are destroyed in large numbers by the spleen, and the body consequently benefits by splenectomy. The condition in the hæmorrhagic diathesis is not quite the same, but the removal of the spleen will diminish the destruction of cells and platelets and permanently remove one source of drain on the marrow. The immediate effect on the hæmorrhages may be ascribed to the flooding of the circulation with platelets either from reserves or from stimulation of the marrow in the same manner as the well-recognised leucocytosis which follows splenectomy. Splenectomy is not a "cure," but it is the best method of treatment available.

Indications for Splenectomy.

Reasons have been given for considering that all cases of the hæmorrhagic diathesis belong to one group, and hence the question whether splenectomy is indicated or not arises in every case.

The blood examination is necessary to exclude other diseases, but apart from this the decision as to operation should be practically based on the clinical condition of the patient and on the manifestations in the past. The degree of anæmia is of obvious importance. So, too, is a count of white cells, since a leucocytosis, especially with a polynucleosis, is a sign that the bone-marrow is more active than in the presence of a leucopenia. A count of platelets is of less importance. A study of cases and of those recorded in the literature shows that the decision as to operation can be arrived at properly in the absence of a platelet count.

In very severe forms, either acute or chronic, in which operation would be dangerous, blood transfusion should be performed, and the question of operation considered subsequently. This procedure may also be carried out in less severe cases.

The question whether splenectomy should be performed should be considered in every case of purpura or hæmorrhages, and the decision should depend on the answers to the questions: 1. Is this a case of the hæmorrhagic diathesis? 2. If so, is it of such severity as calls for splenectomy while giving a fair prospect of recovery from the operation?

SUMMARY.

1. The conditions due to the hæmorrhagic diathesis include the primary purpuras, cases recorded in the literature under such titles as "chronic," "recurrent" and "hereditary" purpura, and as "essential thrombopenia," some of the ill-defined blood diseases of childhood and some of the forms of local hæmorrhages from the mucous membranes. The condition is usually sporadic, but may be hereditary or familial.

2. The initial defect is probably abnormal permeability of the endothelium of the small blood-vessels.

3. There is no essential difference between the various groups. The cases differ in degrees of severity and in the effects of secondary changes.

4. Changes in the total number and differential distribution of the blood-cells, in the number of platelets, in the condition of the bone-marrow, and in the size of the spleen are secondary phenomena. There are no constant or typical changes.

5. Reduction in the number of platelets in any condition is not necessarily followed by hæmorrhages, but is a factor in their occurrence and severity. Reduction may occur in any form of purpura and is not a criterion for the separation of a special type.

6. Splenectomy is beneficial without being a "cure."

7. The question of splenectomy should be considered in every case of the hæmorrhagic diathesis.

The decision as to operation should be based essentially on the clinical condition of the patient in the present and in the past. The number of platelets, the size of the spleen, and the bleeding time are of subsidiary importance only. In acute forms and with advanced anæmia, blood transfusion should be performed first.

The term "angio-staxis" is suggested to include the group of the hæmorrhagic diathesis.

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THE COMPARATIVE VALUE OF RENAL EFFICIENCY TESTS IN PATIENTS WITH ENLARGED PROSTATES.

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ALTHOUGH the use of renal efficiency tests in subjects for prostatectomy has frequently been discussed, yet the relative value of these tests has not, so far as we know, been compared in the same patients. The three tests—blood-urea, urea concentration (MacLean), and phenolsulphonephthalein—have been used at the London Hospital for over four years and a summary of results of these tests is given in Table I. We do not propose to discuss the surgical aspects of the subjects, but should point out that no operation was performed in most of the cases as they were considered unfit, and that of the 113 cases on whom prostatectomy was performed only 16 died and 11 suffered from serious complications.

We have regarded blood-urea as the primary test, partly because we have come to consider it of the greatest value, but also because it is necessary to estimate it when using the urea-concentration test in order to avoid erroneous conclusions.

In group 1 the cases are arranged according to the highest value of blood-urea found. In many cases in which a high blood-urea was found on admission the condition improved after a period of treatment; if the blood-urea was again estimated (this, unfortunately, was not done in all the cases) it was found to have fallen to normal limits; in other cases, however, the blood-urea remained high and in a few rose from normal to high figures during their period in hospital.

The reason for classing the cases according to their highest blood-urea is that a temporary high blood-urea can be regarded as evidence of interference with excretion,[1] and, therefore, of exposure of the kidneys to back pressure and risk of infection, and danger of development of further trouble even when the temporary interference has been removed.

It is obvious from the table that the blood-urea alone is a very valuable index of a patient's fitness for prostatectomy. This is even more striking when we take into account that only two cases in group A and five in group B were operated on without an ample period of drainage. Among the 61 cases with blood-urea below 40 mg. per 100 c.cm. (low and medium normal) there were only three deaths (5 per cent.), and in two of these cases the kidneys were normal; among the 101 with blood-urea above 40 mg. per 100 c.cm. (high normal and abnormal) there were 28 deaths (27·7 per cent.).

TABLE I.

—	—	Total No. of cases.	Died; R.I.		Died; other causes.	Unfit; R.I.	Unfit; other causes.	Did badly; R.I.	Did badly; other causes.	Total died unfit and did badly.	Total did well.
			Before op.	After op.							
Group 1. *Blood-urea.*											
	mg. per 100 u.										
A	60	33	9	2	3(*a*)	2	2(*e*)	4	—	22	11
B	50–59	26	2	1	4(*b*)	—	1(*f*)	1	—	9	17
C	40–49	42	3	—	4(*c*)	—	2(*g*)	1	—	10	32
D	30–39	45	—	1	—	—	6(*h*)	1	1(*i*)	9	36
E	<30	16	—	—	2(*d*)	—	—	—	—	2	14
Group 2. *Urea Concentration.*											
	g.										
A	3·0	11	—	—	2(*a*)	—	1(*d*)	—	—	3	8
B	2·5–2·9	11	—	—	—	—	—	—	—	—	11
C	2·0–2·4	28	2	—	4(*b*)	—	1(*e*)	1(*h*)	—	8	20
D	1·5–1·9	25	2	2	—	1	1(*f*)	1	—	7	18
E	1·5	17	2	—	1(*c*)	3	1(*g*)	—	1(*i*)	8	9
Group 3. *P.S.P.*											
	%										
A	40	42	—	—	1(*a*)	—	—	—	3(*g*)	4	38
B	30–39	25	—	1	3(*b*)	—	3(*d*)	—	—	7	18
C	<30	34	1	2	3(*c*)	10	4(*e*)	1(*f*)	—	21	13

R.I. = Renal inefficiency.

Died; other causes.—(*a*) 2 embolism, 1 endocarditis. (*b*) 1 embolism, 1 broncho-pneumonia, 1 hæmorrhage, 1 thrombosis. (*c*) 2 embolism, 1 hæmorrhage, 1 broncho-pneumonia. (*d*) 1 embolism, 1 hæmorrhage.

Unfit; other causes.—(*e*) 1 senile, 1 mental. (*f*) Emphysema. (*g*) 1 broncho-pneumonia, 1 senile. (*h*) 1 broncho-pneumonia 1 hæmophilia, 1 mental, 1 heart, 1 pneumonia, 1 senile.

Did badly; other causes.—(*i*) Diverticulitis.

Died; other causes.—(*a*) 1 thrombosis, 1 pulmonary embolism. (*b*) 2 embolism, 2 hæmorrhage. (*c*) Hæmorrhage.

Unfit; other causes.—(*d*) Bronchitis. (*e*) Heart. (*f*) Mental. (*g*) Hæmophilia.

Did badly; R.I.—(*h*) Urinary fever.

Did badly; other causes.—Diverticulitis.

Died; other causes.—(*a*) Hæmorrhage. (*b*) 2 embolism, 1 thrombosis. (*c*) 2 hæmorrhage, 1 broncho-pneumonia.

Unfit; other causes.—(*d*) 1 heart, 1 bronchitis, 1 mental. (*e*) 1 hæmophilia, 1 mental, 1 bronchitis, 1 senile.

Did badly; R.I.—(*f*) Urinary fever.

Did badly; other causes.—(*g*) 1 diverticulitis, 1 epididymo-orchitis, 1 recto-vesical fistula.

We have included in this discussion patients who did badly from causes not directly due to damaged kidneys. This may appear unreasonable, but it is evident from this table that such complications are much more likely to occur among the patients with abnormal blood-urea than among those with normal, either because kidney damage renders the patients more liable to the complications—e.g., broncho-pneumonia—or because the cause of the complication also causes kidney damage—e.g., thrombosis of the coronary arteries.

We have excluded the urea-concentration tests in which the urea concentration was under 2 per cent. and the hourly volume over 120 c.cm., as we consider that patients with fairly sound kidneys may fail to attain a concentration of 2 per cent. when the volume

[1] It is true that a high blood-urea may be encountered in diseases such as pneumonia, severe heart failure, and intestinal obstruction, also after ingestion of large quantities of urea or even a high protein diet, without kidney damage. It is unlikely, however, that anyone would choose these conditions when performing tests of renal efficiency on patients with enlarged prostates.

is above this figure. We fully recognise the arbitrary nature of the choice of this limit, and that some method of "weighting" the significance of the urea concentration according to the volume passed would be more just, but we have not attempted this as such weighting, unless done according to some rigid formula, would be apt to degenerate, in a paper such as this, into "cooking." When an hourly volume over 120 c.cm. was passed the test was often not repeated, as the surgeon was satisfied with other tests; hence the number of cases in which the urea concentration is here recorded is only 92. The results of this test are also satisfactory, especially when it is considered that six of the cases in group 2, A, B, and C, that died had very high blood-urea and that, therefore, the normal urea concentration in their urine could not be regarded as evidence of a sound kidney.

It was found impossible to classify the results of phenolsulphonephthalein excretion in more detail than is already given in the table. In the first place the cases with enlarged prostates often give surprisingly low returns of phenolsulphonephthalein; this may be partly, but not we think completely, explained by incomplete hourly samples, loss of phenolsulphonephthalein by destruction in infected alkaline urine in the bladder, and loss of dye by adhesion to the precipitate when the urine is cleared of blood. However, with this limitation we get the valuable result that in group 3, A, only four patients did badly in any way—in three of these patients all the tests were satisfactory—and in group 3, B, in one only was the adverse result directly due to renal inefficiency. In group 3 the majority of the cases still did well, and we have found patients with apparently sound kidneys giving very low values and others with undoubted renal damage giving figures of 20 or more. So that low figures do not necessarily mean correspondingly damaged kidneys.

As we have considered the blood-urea as the primary test we have now to consider to what degree the other tests supplement the blood-urea. A certain number of patients with normal blood-urea did badly. Can these be eliminated by the urea-concentration tests? Considering only those cases with normal blood-urea (i.e., under 50 mg. per 100 c.cm.) we find in group 2, A and B, 19, of whom three did badly, one from renal causes; in group 2, C, 27, of whom seven did badly with two renal; in group 2, D, 18, of whom five did badly with four renal; and in group 2, E, 10, of whom six did badly, three being renal.

It may be inferred that if the blood-urea is normal there is more chance of a bad result if the urea concentration lies between 1·5 and 2 per cent. and a much greater chance if it lies below 1·5 per cent. Our experience is that the urea-concentration test is of much greater value as a supplement to the blood-urea in medical cases; probably the conditions of life are more conducive to retention of urea in prostate cases than in medical cases, so that urea retention occurs with a slighter degree of renal damage.

The only value of the phenolsulphonephthalein test appears to be that excretions over 40 are certain evidence of fitness; among the 42 cases in this group there were 10 with blood-urea over 50, 11 with urea concentration 1·5–1·9, and 3 with urea concentration below 1·5; of these all did well except one, who died of hæmorrhage. It does, therefore, give information that the other two tests may not give. However, there is so great a liability to give low figures when the kidneys are sound that its value as a routine test is questionable.

Table II. shows cases in which the tests, bad at first, were repeated after some period of drainage either by catheter or cystotomy. Unfortunately, the number is small, as in many cases a clinical improvement was regarded as sufficient evidence that the patient had become fit for operation and the tests were not repeated. The Cases 4, 6, 10, and 11 illustrate the fact that, though the blood-urea may fall after drainage, the renal efficiency may remain bad and operation may be dangerous.

It is in deciding on such cases, in which the blood-urea has fallen to normal on treatment, that the other tests might be expected to be of the greatest value, but the cases cited give little information on this point. Cases 4 and 1 illustrate that a normal urea-concentration test is not sufficient evidence that the kidneys are in a satisfactory condition if the blood-urea is high.

TABLE II.—*Effects of Drainage on Tests.*

A. *Catheter.*

Case.	Date.	Blood-urea.	P.S.P.	Urea concentration.	Result.
1.	22/3/21	60	..	..	Died;
	1/4/21	80	15	180—1·7	hæmorrhage.
	8/4/21	75	50	90—2·6	
Cys.	13/4/21	..	..	..	
	19/4/21	82	18	62—2·22	
Pros.	4/5/21	..	..	..	
2.	20/9/21	48	6	57—1·8	Nothing
Cys.	27/9/21	65	21	78—1·9	further
	11/10/21	37	18	42—1·8	done.
3.	On admis.	74	..	..	No
Cys.	2 w.l.	28	..	..	further
	2 w.l.	34	..	..	treatment.
	3 w.l.	24	..	..	
	4 w.l.	32	..	..	
4.	1/9/21	100	10	30—2·7	Died; pyelo-
Pros.	19/9/21	37	20	87—1·8	nephritis.
5.	Catheter	58	33	28—2·52	Did well.
	8 w.l.	48	49	83—2·82	

B. *Cystotomy.*

6.					
Cys.	6/5/21	..	..	..	Died; broncho-
	9/5/21	52	..	..	pneumonia.
Pros.	24/5/21	34	—	1·8	
7.					
Cys.	7/6/21	100	..	..	Did well.
Pros.	14/6/21	..	..	..	
	21/6/21	46	32	95—2·4	
8.					
Cys.	12/8/21	54·5	4	15—1·7	
Pros.	29/8/21	35	—	170—1·8	
9.					
Cys.	21/4/26	73	..	..	Did very
Pros.	9/6/26	51	..	..	well.
10.					
Cys.	..	96	0	150—0·63	Under
	2 w.l.	60	14	84—0·72	observation.
	7 w.l.	57	..	..	
	11 w.l.	39	..	..	
	13 w.l.	51	10	87—0·96	
11.					
Cys.	..	54	..	..	Died; pyelo-
	1 w.l.	24	..	..	nephritis.
	2 w.l.	30	..	..	
	3 w.l.	30	..	..	
12.					
Cys.	..	66	9	50—0·96	Died;
	3 w.l.	67	20	68—1·90	uræmia.
13.					
Cys.	..	55	..	..	Did well.
Pros.	4 w.l.	42	..	..	
14.					
Cys.	..	72	..	..	Did well.
Pros.	5 w.l.	45	..	..	
15.					
Cys.	..	51	9	98—1·58	Died; ascending
	2 w.l.	60	13	84—0·72	infection.
16.					
Cys.	..	49	..	..	Did well.
Pros.	2 w.l.	43	..	..	

Cys. = cystotomy. Pros. = prostatectomy. W.L. = weeks later.

We consider that this series of cases illustrates the value of the blood-urea estimation; the urea-concentration test is of some value to supplement the blood-urea, probably most particularly in those cases in which the blood-urea has fallen after treatment; satisfactory conclusions can only be drawn from the phenolsulphonephthalein test when the results are high—such a result can be taken as certain evidence of sound kidneys—but the test is disappointing owing to the frequent occurrence of low results when the kidneys appear to be sound.

We are indebted to the surgeons at the London Hospital for permission to make use of their cases.

AURICULAR FLUTTER IN INFANCY.

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As far as we are aware the case we are about to describe is the first to be recorded of auricular flutter in an infant. So far the age-limits between which cases of auricular flutter have been recognised are from the fifth to the seventy-fourth year, to quote from the work of Dr. W. T. Ritchie.[1] Flutter of the auricles, however, is probably not the only form of arrhythmia presented on occasion by the following case, as within a short space of time a variety of rhythms has been observed clinically, such as tachycardia, extrasystoles, and a wildly disordered state of the cardiac action, which can best be described as a delirium cordis. On occasions when electrocardiographic tracings were obtainable, auricular flutter was demonstrated. No tracings could be taken at times of the greatest cardiac disorder owing to the severity of the patient's symptoms.

Description of Case.

The patient, a male, was first seen at the age of 4 months, and is now 3½ years old. He was born at full term of a normal labour, and weighed 9 lb. at birth. He is the second youngest of nine children, the eldest being 20. The parents and other children are all healthy. In the case of our patient there is a history of the mother having had a bad fall when 7½ months pregnant.

When first brought to hospital at 4 months of age the mother stated that he had been irritable and subject to fits of screaming from birth. In these attacks he "drew himself up into a ball, screamed, and went blue round the mouth." The symptoms were attributed to indigestion and flatulence. The duration of individual attacks varied, but might last for half an hour, and were sometimes as frequent as three in a day. In the longer attacks he sometimes became rigid.

Electrocardiographs showing Auricular Flutter.

FIG. 1.

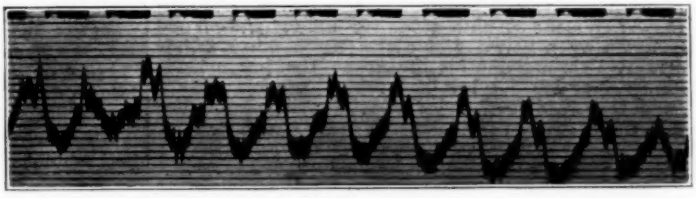

Fig. 1 shows a 1 : 1 rhythm, ventricles responding to each auricular contraction (lead II.).

FIG. 2.

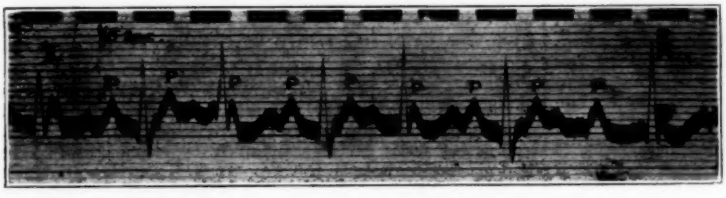

Fig. 2 shows 1 : 1, 1 : 2, and 1 : 3 rhythms (lead II.)

Other symptoms described by the mother were breathlessness, vomiting, cyanosis of the fingers, sweating, and "varicose veins" at the root of the neck. On 12 occasions the child has been admitted to hospital because of the severity of the symptoms. Countless other attacks have occurred at home for which the mother did not seek help, being well accustomed to their occurrence.

In the period of recovery from a severe attack the state of the child is always one of extreme listlessness. Examination of the cardiovascular system shows slight bulging of the precordia, extensive pulsation of the precordial interspaces and of the epigastrium, and swelling of the jugular veins. The cardiac dullness reaches great dimensions, extending horizontally from an inch beyond the right sternal border as far to the left as the anterior axillary line and bounded above by the second left costal cartilage. The rapidity and variability of the cardiac rhythm at such times is clinically most perplexing, tachycardia, extrasystoles and phases of "irregular irregularity" displacing each other indiscriminately. The pulse, from being uncountable at the onset of the attack, may show variations from 250 to 100 beats a minute for several days afterwards. After a period of two to eight days, the pulse-rate may lie between 80 and 150. At such times extrasystoles are still common, and it is usually after one of these that sudden alterations in the rhythm may be detected. An apical systolic murmur was audible on one occasion only, otherwise there has been no evidence of valvular disorder. As a consequence of the great cardiac dilatation the liver enlarges rapidly, and in one of the earlier attacks reached downwards to the level of the umbilicus. On this occasion the spleen could not be felt, but in more recent attacks the spleen has seemed to enlarge relatively more than the liver.

The recovery of the child to a state of comfort is not always gradual, but sometimes occurs suddenly with a drop in the pulse-rate and disappearance of the cyanosis. Between attacks the child is very active, looks the picture of robust health, and is well grown for his age. Examination reveals the fact that the heart is considerably larger than normal, and that alterations of rhythm are of common occurrence. In a few instances definite acts have coincided with the onset of the cardiac attacks—taking a feeding-bottle, the banging of a door, falling down. Even in the quiescent stages minor stimuli, chiefly emotional such as smiling, may bring about an alteration of the cardiac rhythm. The Wassermann reaction of the blood, tested on two occasions, has been negative. It is of interest to note that the child has had broncho-pneumonia and tonsillitis, both of which ran a normal course.

Discussion.

This case shows many features of clinical interest, and one of them is the congenital origin of the condition. It seems beyond doubt that the symptoms described in the first few weeks of life only differed in degree from those that brought the child to the hospital. The early attacks of abdominal pain with blueness round the mouth, screaming and drawing up of the legs, resemble in some respects those which for many years have been attributed in infancy to flatulence and dyspepsia, results of an unsuitable diet, and they were regarded as such by his mother.

The explanation might be suggested that there existed some unusual cardiac malformation, but we are inclined to dismiss this. Although it is well known that grave malformation may occur without the presence of a cardiac murmur, we believe that such anomalous cases, without a murmur and without cyanosis, and yet subject to violent attacks such as this child suffers from almost invariably die in the first year of life. This boy, on the other hand, appears to be stronger than he was three years ago, and we can hardly think that a gross cardiac malformation would allow him when at his best to run about and appear almost a normal child.

When he was first admitted to hospital the picture was that of an acute cardiac failure, such as we see occasionally resulting from acute influenza, virulent cardiac rheumatism, or profound diphtherial damage

[1] W. T. Ritchie: Auricular Flutter, 1914, p. 28.

to the cardiac muscle. It was not at once apparent that the attacks were recurrent, for all evidence of any infection had to be excluded, and the previous history closely examined.

Another interesting point is that, although this child has had numberless attacks of greater or less severity, and although it is probably no exaggeration to say that during the greater part of his life his heart has been beating at about 150 per minute, he is well grown, bright coloured, and as wayward as any healthy child of a corresponding age. A case such as this well illustrates the remarkable power of the natural processes of growth and development to assert themselves in the face of grave anomalies in the circulation. How remarkable that such a heart could hold its own through an attack of broncho-pneumonia! Few, we think, who saw this child when first admitted could have believed it possible that when he was readmitted with broncho-pneumonia the illness could have ever run an ordinary and satisfactory course. Equally interesting is the influence of emotion upon the rate of the heart. At one time, if the pulse was counted and the child encouraged to smile, the rate rushed up some 30–40 beats in the minute, and on one occasion when he was tickled he fell back in a minor attack. Throughout his life up to the present the influence of emotion has been prominent.

On the other hand, there have been times when the pulse and heart were perfectly regular at 82, and, except for the enlargement—easily enough overlooked in so young a child—the boy might have been passed as healthy. This enlargement of the heart is worth noting, for should it be that at some future date he is found dead, the pathologist would probably be confronted by a large heart with no apparent reason for the fact. Cases of congenital hypertrophy of the heart are known to occur. Œdema and cyanosis of the extremities are not common features of such cases. The present case bears some resemblance to those described by Howland[2] as idiopathic hypertrophy of the heart in young children. He records five fatal cases, from ten months to four years, in which breathlessness, fainting attacks, vomiting, rapid pulse, and occasional cyanosis were among the symptoms observed. In none of Howland's cases were any valvular defects found at autopsy. The arrhythmias, however, mentioned in the present case were not observed in his.

The variations in the rhythm of the heart were remarkable. It will be understood that repeated tracings from an infant who invariably cried and struggled lustily with fear were not practicable, and those that were taken might be compared to the examination career of a student, events at certain intervals more or less successful. We are compelled, then, to write of these variations of rhythm in the terms of ordinary careful clinical examination, save for the occasional tracings kindly made for us by Sir Thomas Lewis, Dr. Wiltshire, and Dr. John Parkinson. In a sentence: the study of arrhythmia in this infant seemed to be thrown back into chaos. We noted extreme tachycardia, a completely irregular rhythm, numerous extrasystoles, and also a regular normal rate. Sometimes, again, the heart would be beating regularly and suddenly trip, when there would follow a complete change in the rhythm.

Supraventricular extrasystoles, flutter, and fibrillation, according to Ritchie, may be regarded as representing successive stages of abnormal stimulation of the auricles. An interesting point in the present case is that all these seemed to occur repeatedly and in no special order during the attacks, if one may suppose that fibrillation was present when the cardiac action was most irregular. The pulsus alternans, which with a pulse-rate in the region of 150 is said to be a sign of auricular flutter, was never observed.

Treatment.

Reviewing the results of treatment, we conclude that complete rest was the great agent. Digitalis in small doses was helpful, and on one occasion quinidine was used, the heart rapidly slowed down, but none of the drugs employed mastered the essential difficulty, the prevention of recurrences. We would direct attention to Dr. Parkinson's tracing here given, which illustrates in an infant an auricular flutter with the ventricles going at the same pace and not, as is usual, an auricle beating at two or three times the rate of the ventricle.

This child is still under observation, and better than he was two years ago, but we feel that it would be unwise to hazard a prognosis until he has passed with success through the age when he is exposed to the usual stresses and strains of boyhood.

We are indebted to Dr. G. F. Still for permission to use the notes of the first attack in hospital when the boy was under his care.

[2] J. Howland: Contrib. Med. Biol. Research (Osler), 1919, i., 582.

A NOTE ON
HELIOTHERAPY IN PULMONARY TUBERCULOSIS.

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So beneficial is heliotherapy in the treatment of non-pulmonary tuberculosis that it is somewhat surprising little use has been made of this auxiliary method of treatment in purely pulmonary disease. An idea has arisen that heliotherapy is unsafe, and even definitely harmful, in these cases.

In the institution of which I have charge nearly half the beds are occupied by cases of non-pulmonary disease, who make full use of natural sunlight with the usual benefit. A proportion of these cases have pulmonary disease in addition to the non-pulmonary lesion. Such combined cases require carefully graduated exposures, but appear to derive benefit from heliotherapy in the same way as do the non-pulmonary cases. In recent literature various workers have drawn attention to the use of heliotherapy in pulmonary tuberculosis, notably Hudson and Hill,[1] Rollier,[2] McCutcheon,[3] Bronfin.[4]

Encouraged by the favourable reports of these observers, and by my own experience in cases of little activity, a series of pulmonary cases of all types were carefully subjected to heliotherapy during the summer of 1925, with the object of determining whether any definite benefit could be obtained, and observing what ill-effect, if any, might arise from such treatment in cases of active disease.

Selection of Cases.

In the first place exposures were given to afebrile ambulant cases only, but all had bilateral disease. No ill-effect being observed in this type of case, exposures were given cautiously to cases confined to bed and still slightly febrile. It was found that these cases could be exposed for short periods without reaction. The presence of slight fever and toxæmia does not necessarily contra-indicate exposure under proper control, although such cases are best exposed to indirect sunlight, as indicated below. Several cases had lesions in addition to the pulmonary disease of such a nature as to entail, in ordinary circumstances, a particularly bad prognosis. No fewer than seven cases were of the fair, freckled type.

Heliotherapy was tried in 21 cases, which were classified by the Ministry of Health classification, as follows:—

Class A.—No tubercle bacilli in sputum, 4.

Class B.—Tubercle bacilli present in sputum: Group 1, nil; Group 2, 8; Group 3, 9; total, 21.

Complications were present in 11 of these cases, and were as follows:—

Tuberculous laryngitis, 3; pleural effusion, 3; multiple non-pulmonary lesions, 2; tuberculous peritonitis, 1; rectal fistula, 1; tuberculous empyema, with sinus, 1.

The treatment was commenced in May of last year. At the outset careful clinical and X ray examinations were made, and in some cases blood sedimentation tests and eosinophil counts were done. These were repeated under identical conditions on discharge, or if the patient was still under treatment, during the month of October.

The average duration of sanatorium treatment before heliotherapy was commenced was 4½ months, whilst the duration of treatment by heliotherapy varied from 2½ to 5 months.

Technique.

In this country the duration and frequency of exposures, and the extent of body surface exposed, must depend on the weather and locality. The activity of the disease must be considered, but the anatomical extent of disease seems to be of secondary importance, just as it is clinically.

At the commencement of treatment the weather was consistently sunny and hot. The patients were supplied with bathing drawers and cotton hat. No other equipment was necessary. Exposures were made with the patient either on his bed or reclining on a rest-chair on the lawn. Erythema doses were avoided as far as possible.

In most cases preliminary shade exposures were given. Working rapidly up from the feet, whole body shade exposures were reached in a few days. These whole body shade exposures were increased up to three separate periods of 15 minutes each, with an interval of 10 minutes between each exposure. When this stage was reached the patient was given one period of 5 minutes in full sunlight exposing the whole body as before. On the next day two periods of 5 minutes were given, and on the third day three periods of 5 minutes, with 10 minutes interval between each period.

Increases were then made weekly, as follows: First week: Three whole body exposures of 5 minutes, daily; second week: 10 minutes, daily; third week: 15 minutes, daily; and so on until in favourable cases a maximum exposure of three periods of 30 minutes was reached.

Those cases in whom the disease appeared to be least active were allowed to spray each other at the termination of the daily sun treatment with an ordinary garden spray and hose pipe. The rationale of this procedure is based on the increased metabolism produced by spraying and bathing at Sir Henry Gauvain's Hayling Island Hospital.[5]

Shade exposures in hot weather are, in my opinion, of considerable value for advanced cases; for not only does the patient get a weak dose of ultra-violet light, but he benefits by the tonic effect of cool moving air impinging on the body. Dr. Leonard Hill has shown that metabolism is markedly increased thereby. Slight pigmentation may also result, and a toxæmic patient, possibly of the fair, freckled type, can subsequently be exposed to direct sun with a fair degree of safety.

Patients on direct sun exposures were encouraged to continue their exposures on dull cloudy days, and little difficulty was experienced in inducing them to do so. Moreover, when pigmentation has taken place, the patient is markedly less sensitive to cold.

A description of the technique of sun treatment would be incomplete without reference to the importance of adequate supervision, particularly when dealing with cases of active pulmonary disease. It is rarely safe to leave the carrying out of the ordered amount of exposure to the patient alone. Even the most intelligent patient may be tempted to do too much, so great is the sense of well-being experienced.

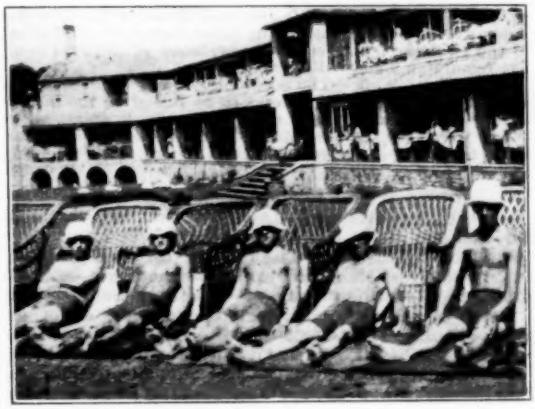
Immediate Effects of Sun Exposures.

Observations were made of the immediate effects of exposure on the temperature, pulse, and blood pressure. In most cases there was a definite rise of temperature of about 1° F. at the end of exposure; half an hour later this was diminishing to normal. A similar effect on the pulse-rate was noted, though in some cases the rate was lowered and remained low half an hour later.

The systolic blood pressure was lowered immediately after exposure, in most cases remaining low half an hour later, but in some cases the pressure had risen again by this time. The effect of cold spraying immediately after exposure was to restore the pressure more quickly, followed in some cases by a slight fall. Most patients did not notice any immediate effect on their symptoms, but two cases complained of a tight feeling in their chest, followed later in the day by loosened sputum.

Effects Noticed During the Course of Heliotherapy.

After a few exposures several patients stated that their appetite had improved and that they slept better. There was at first no definite effect on the cough and sputum. All appeared to experience a sense of well-being and general fitness, especially the less acute cases. Perhaps the most noticeable effect was on the mental condition, an improved atmosphere of content and cheeriness being quite obvious. As noted above, erythema doses were avoided as far as possible, and no case of blistering occurred. Any slight rise of evening temperature which could be put down to the effect of exposure was considered an indication for reduction of the exposure. But such temperature changes were few. Special attention must be drawn to the fact that no cases of hæmoptysis occurred.



Pulmonary cases undergoing sun treatment.

Clinical Condition at the Termination of Treatment by Heliotherapy.

Physical Signs.—In 12 cases these were unchanged, but in the remaining 9 cases there were signs of improvement. Marked unilateral fibrosis and contraction occurred in 4 of these 9 cases, whilst in the remaining 5 cases there were less well-marked signs of fibrosis, and disappearance of adventitious signs.

Weight.—The weight increased in 15 cases by amounts varying from 2½ lb. to 1 st. 10 lb. A slight loss occurred in one case, whilst the remainder showed no change.

Sputum.—The sputum was definitely reduced in quantity in 11 cases, in 2 cases increased, and unchanged in 8 cases.

Temperature.—A reduction of temperature was noticed in 6 cases only, but the majority were afebrile (resting) at the commencement of treatment.

Pulse.—The pulse-rate was reduced in 10 cases.

Blood Pressure.—The systolic pressure was recorded before and after the course of treatment in 10 cases. In no case was there a change of more than 10 mm. In 4 cases the pressure was higher, in 2 lower, in 4 unchanged. The pressures were taken with a mercury manometer and at the same time of day in each case.

Pigmentation.—Ten cases showed good pigmentation, 5 cases showed moderate pigmentation, whilst the remaining 6 did not pigment at all.

Complications.—As regards the complications previously mentioned, the following results were obtained: Tuberculous laryngitis, 3 cases (1 case definitely improved); pleura-

effusion, 3 cases (2 effusions absorbed); multiple non-pulmonary lesions, 2 cases (in both cases one or two lesions healed); tuberculous peritonitis, 1 case (marked improvement); rectal fistula, 1 case (healed); tuberculous empyema, with sinus, 1 case (healed).

Muscular Development.—Workers in non-pulmonary tuberculosis are familiar with the increase of muscular development following on heliotherapy, though the patient is still recumbent and has only a limited range of movement. Careful measurements of the legs were taken accordingly before and after the course of sun treatment. In every case measured there was an increase in the circumference of both thigh and calf, varying from ½ inch to 1½ inches. Palpation of the limbs so measured suggested that there had been a true muscular development, and not merely a deposition of subcutaneous fat.

Clinical Conclusions.—Taking all the above facts into consideration, and avoiding undue optimism as far as possible, it can be stated that definite clinical improvement was evident in 15 of the series of 21 cases.

X Ray Evidence.—X ray photographs were taken before and after the course of heliotherapy in 14 cases. The technique followed in taking the radiographs was identical in each case, and in the initial and final films, faulty interpretation due to varying technique being therefore eliminated. Of the 14 cases, 5 showed X ray evidence of improvement. The remaining 9 showed no change.

Eosinophil Counts.—The eosinophil count is low in acute cases of tuberculosis and is said to be raised as the disease becomes less acute. Counts were done in 9 cases, all of which were low before sun treatment was commenced. After the course of treatment the count was definitely higher in 5 cases.

Conclusion.

A study of these results shows that no ill-effects followed the use of heliotherapy in this series of cases of pulmonary disease. The number of cases is small, but so many of them did well that there can be little doubt the treatment was of definite benefit, either directly or indirectly through the general effect on metabolism. The effect on the mentality of the patient is, in itself, of great value in institutional life. Heliotherapy, therefore, is at our disposal as a valuable auxiliary method of treatment in pulmonary as well as in non-pulmonary disease.

I wish to express my thanks to Sir Henry Gauvain, at whose suggestion this work was commenced, for his advice and encouragement in the preparation of this paper. Also to Dr. Charles Sundell, who has corrected the manuscript, for his kind interest in the work.

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THE EFFECT OF X RAYS UPON ROUS CHICKEN TUMOUR.

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IN several publications during the last six years we have shown that it is possible to give a lethal dose of X rays in vitro to mouse or rat tumours with a fair degree of accuracy. This lethal dose, which we have called L., is the minimum amount of X rays necessary to prevent growth when the tumour is reinoculated into normal susceptible animals; it has been tested a great many times on Jensen's rat sarcoma. A very rapidly growing tumour generally needs a little more radiation than a slowly growing one of the same variety; but even so, the lethal dose does not vary more than ±10 per cent.

Similar experiments have been done with five other animal tumours, Twort's mouse carcinoma, S.37 mouse sarcoma, F.16 rat sarcoma, rat carcinoma R.9 of the Imperial Cancer Research Fund, and a carcinoma of the rat arising in one of the animals in these laboratories. These experiments have shown that none of these tumours need more than the Jensen's rat sarcoma L. + 30 per cent.

Nearly 90 human cases of malignant disease have been treated by inoculations with X rayed autologous tumours, with the object of immunising them against recurrence of the disease, and as a precaution the dose has been increased to 2 L., but none of these irradiated tumours have grown after this dose.[1]

The following types of growth have been dealt with in this way:—

Carcinomata.—Breast (spheroidal celled, colloid, scirrhus, endothelioma, duct); neck (squamous); tongue (squamous); thyroid (carcinoma); larynx (squamous); liver (columnar); ovary (malignant papilloma).

Sarcomata.—Breast (endothelioma); neck (endothelioma); testis (round-celled); mediastinum (round-celled, lymphadenoma, lymphosarcoma); axillary glands (round-celled); scapula (endothelioma); femur (round-celled, spindle-celled); ilium (spindle-celled, alveolar).

It will be seen from this that the "lethal dose" has been tested on a good many varieties of tumours, and that none has grown when inoculated into susceptible hosts if the dose of radiation has been something between 1 L. and 2 L.

Ever since the initial work by Rous on the chicken sarcoma, which bears his name, it has been recognised that this tumour differs from those propagated in rats and mice in the fact that a cell-free filtrate, obtained from the tumour, when inoculated into chickens, reproduces tumours indistinguishable from those produced by the inoculation of the actively growing cells.[2] It has also been shown that the filtrate can be dried and kept for some time, and will even then still produce tumours.

In view of Gye's recent experimental work on this tumour [3] and the bearing his conclusions might have upon the radiotherapy of malignant growths, the following experiments were made:—

A Rous chicken sarcoma was excised and exposed to X rays of the same character and intensity as those used for the rat, mouse, and human tumours, the length of time was 50′ = 1 L.; small pieces of the irradiated tumour were then inoculated into the left breasts of six young fowls. Control pieces were inoculated into the right breasts of two of them. All the tumours grew rapidly and there was no apparent difference between the behaviour of the irradiated and control tumours.

Similar experiments were carried out, increasing the dose of X rays, first to 1·5 L., then 2 L. and 3 L., and finally to 5 L. Even after a dose five times the lethal, no difference could be detected with certainty in the rate of growth, or size of the tumours, the number of metastases, or the rapidity with which the birds died. The data in the table show the comparative rates of growth of the irradiated (dose 5 L.) and control tumours.

	Time after inoculation.		
	9 days.	13 days.	16 days.
Experimental—	cm.	cm.	cm.
Chicken 1	2·5 × 1·0	4·0 × 2·5	5·0 × 3·0
Chicken 2	2·0 × 1·0	4·5 × 2·0	5·0 × 2·5
Chicken 3	3·0 × 2·0	4·5 × 3·0	5·5 × 3·0
Chicken 4	2·0 × 1·5	3·0 × 2·0	4·0 × 2·5
Control—			
Chicken 1	1·5 × 1·0	3·5 × 2·5	6·0 × 3·0
Chicken 2	1·5 × 1·0	3·5 × 2·5	4·5 × 3·0

N.B.—It is very difficult to make accurate measurements of these tumours as the edge is not very clearly defined. Two measurements have been taken at right angles to each other and estimated to the nearest half centimetre.

In order to see whether the cell-free virus could be affected in any way by X rays, some of this (kindly prepared for us by Dr. S. L. Baker) was exposed at the same time as the tumour, receiving 2 L. and 3 L. doses; in both cases 0·5 c.cm. of the X rayed filtrate produced just as large tumours as the same quantity of control fluid. A lethal dose of X rays of a slightly harder type was given to a Rous tumour in vivo, the rest of the fowl being screened with lead; this had apparently no effect on the subsequent behaviour of the tumour. Black leghorn fowls of the same strain

have been used for all these experiments, and the tumour has grown progressively in every case.

It may be considered from these experiments that very large doses of X rays (five times that needed for a lethal action on other malignant growths) appear to have no appreciable effect on Rous's chicken sarcoma. Other experiments show that the virus of this tumour, when treated separately, is very resistant to X rays. If a similar virus were present in malignant growths in the mouse, rat, or man, we should have to explain why a dose of X rays will prevent the growth of these tumours, while five times as much has no effect on the growth of the Rous sarcoma. It may be that the animal tumours do not contain a similar virus to the Rous, or that its susceptibility to X rays depends upon the tissue in which it exists, or that there is some substance, at present unrecognised, essential to the growth of these tumours which is easily affected by X rays.

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THE TECHNIQUE OF BLOOD TRANSFUSION.

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IN the past, transfusion of blood has had its most striking successes as an emergency operation in the hands of the surgeon. For a long time the dangers and difficulties with which it was associated precluded, to a great extent, its adoption by the physician for the treatment of chronic disease. The discovery of the blood groups enlightened us as to the nature of incompatibility, and, later, the introduction of the citrate method provided a means of avoiding the most troublesome difficulty. But it is clear that the technique needs still further improvement in order that its field of action may be extended from the operating theatre to the ward. The main object of this investigation—which is based upon 40 cases transfused by the citrate method—is the solution of this technical problem. I have endeavoured to devise a method of transfusion which may be carried out in the wards with safety and reasonable certainty of success, without the need of skilled assistance, independent of strictly aseptic conditions and not requiring elaborate apparatus, difficult to improvise and difficult to sterilise.

Methods.

Of the methods that have been brought forward from time to time there are three that I would like to recall. In 1919 Fleming and Porteous[1] recorded their experience of blood transfusion as carried out by the use of Robertson's apparatus. This consists of a cylindrical bottle connected by three pieces of tubing to the collecting needle, the delivering needle, and a bellows respectively. This apparatus has the great virtue of simplicity, but in my experience of apparatus of this kind I have found serious difficulty to arise from clotting of the blood, either in the bottle itself or in the tubing. Another method is described by Stansfeld,[2] in which the citrate joins the blood as near the vein as possible. But the apparatus is too elaborate, it is adapted for use with small quantities of citrate only, and there is no way of keeping the blood warm. Then Keynes[3] introduced a method which was a great advance in technique; I have used it on 35 occasions, modified, as described below, in the last eight of these. But it does not eliminate the clotting difficulty altogether; moreover, the open method of collection is used which carries with it the risk of contaminating the blood, for the flask must be held below the level of the donor's arm whence infective material may fall nto it.

Precautions.

With the object of this investigation in view, it seems that the direction in which improvement is indicated is determined by two considerations: (1) the necessity of avoiding contamination; (2) the prevention of clotting. The risk of contamination may be avoided by adapting Robertson's method of collection to Keynes's method of delivery. The problem, therefore, resolves itself into an endeavour to perfect the means by which the possibility of clotting may be eliminated. To secure this end particular attention must be paid to: (1) the distance to be travelled before blood and citrate mix; (2) the rate of flow from the vein. By using the Stansfeld plan, the distance between the needle and the citrate may be reduced to about 2 inches. The rate of flow of the blood depends upon the size of the needle and the rate of filling of the vein. The former is dealt with by using a Keynes needle; the latter requires careful consideration. A full vein means a relaxed artery, and the calibre of the arteries varies with the emotions. Fear, pain, and discomfort all militate against success.

Fear is a potent source of difficulty, both in collecting and in delivering the blood. Even the most courageous donor may be very much afraid, however indignantly he denies it, and in consequence everything should be done to put him at his ease. The following rules will help to make things go smoothly: (1) Never keep a donor waiting. (2) If he is cold give him a hot drink before taking his blood. (3) Have everything in working order before he arrives. (4) Collect the blood in a quiet room without an audience. (5) Restrict the parade of instruments and ceremonial to the barest necessities of the case. Similar precautions are necessary for the patient; if he is nervous a preliminary injection of morphia may be given.

Pain should be reduced to a minimum by using novocaine, as described below, for both donor and patient.

Discomfort may arise from the posture of the donor and from the pressure applied to his arm during the collection of the blood. He should lie on a couch and should be made as comfortable as possible with pillows for his head, and for the support of the arm which is to be used. The armlet pressure should not be raised above 80 mm. Hg—which is the average diastolic pressure—for anything above this will obstruct the artery. But with every care it will not always be possible to ensure a steady flow of blood from the vein. Some contrivance is needed to prevent stagnation of the blood in the tubing.

Apparatus.

The apparatus consists of the following pieces:—

Flasks.—(1) The transfusion flask of 1 litre capacity, graduated in 100 c.cm., preferably conical and made of stout glass, having a side tube connecting with pressure and exhaust, respectively. (2) The citrate flask of 200 c.cm. capacity, graduated in 50 c.cm.

Needles.—(1) A large Keynes needle for collecting. (2) A smaller needle for delivering the blood. (3) A small silver cannula for use if required.

Air-Locks.—Of similar pattern to that used by Keynes, one for the citrate and the other for the blood. These may be made with the barrels of 1 oz. glass syringes.

Glass Connexions.—(1) Two bent pieces referred to as "siphon tubes." (2) A short piece of tubing, referred to as "the inlet tube," for directing the blood into the transfusion flask. (3) Three short lengths: (*a*) A "window" for interposing immediately before the delivering needle. (*b*) A suction tube. (*c*) An air filter, packed with cotton-wool, for interposing between the suction tube and the flask. (4) A wide bore T-piece. It is advisable to keep a duplicate of this, which is the only essential part that cannot readily be improvised.

Rubber Tubing.—The requirements in this respect are sufficiently indicated in the diagram. Special points to notice are: (*a*) Where clips may have to be applied, it is convenient to use moderately thick rubber. (*b*) The connexion between the collecting needle and the T-piece should not be more than 2 inches long.

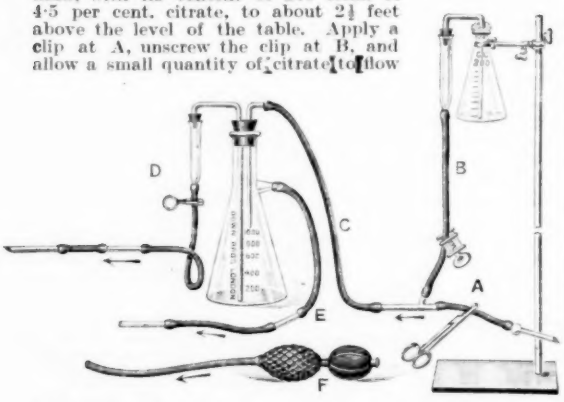
Clips.—(1) A screw clip with large milled head, for controlling the flow of citrate. (2) A spring clip for cutting

off the delivering tube during collection. (3) Three Spencer Wells forceps, with serrations ground down, for use as required. These are easy to manipulate with one hand.

A Double Bellows; an Upright Stand; a Thermostat.—The thermostat is a great convenience, but it is not a necessity; a bowl of hot water can be made to serve the same purpose. The pattern I have used was made for me by Mr. Daniels, the theatre supervisor at the London Hospital. It does not appear in the diagram, but it may be obtained with the rest of the apparatus. It is an electrical contrivance, adapted by means of suitable resistance wire to maintain a temperature of 110° F. It is fitted with clips to grip the flask and restrain its buoyancy as it empties.

Technique.

To Start the Citrate Siphon.—Fill the air-lock (B) and its rubber continuation with 4·5 per cent. sodium citrate. Fix the cork attaching it to the glass siphon tube as firmly as possible, and introduce the long arm of the glass tube, through the gauze plug, into the citrate flask, making sure that it reaches the bottom. Elevate the flask, with its content of 200 c.cm. of 4·5 per cent. citrate, to about 2½ feet above the level of the table. Apply a clip at A, unscrew the clip at B, and allow a small quantity of citrate to flow



into the transfusion flask. Apply a clip at C and release A. Wash through the needle. Apply a clip at A and release C. Screw up the clip at B. The apparatus is then ready for collecting the blood.

To Collect the Blood.—Apply the armlet of an aneroid sphygmomanometer well above the bend of the elbow. Cleanse the skin with ether and paint with iodine. Inject a few drops of novocaine (2 per cent.) intradermically at the site chosen for puncture. Make a nick through the skin with a sharp knife, right down to the wall of the vein. Raise the pressure in the armlet to 80 mm. Insert the needle boldly. When it is felt to enter the vein release the clip at A. Blood should appear in the T-piece. When the blood is flowing freely adjust the screw clip to give a continuous succession of drops of citrate. The citrate siphon should deliver 100 c.cm. for every 400 c.cm. of blood. Suction is rarely needed. Its effect is to increase the proportion of citrate. The flow of blood, when using a big needle, is mainly determined by the rate at which the vein is filling. This is not influenced by suction. The suction tube E should therefore be left open and lying handy for use if required.

If the Flow of Citrate should Stop it may be restarted in one of the following ways: (1) By unscrewing the clip at B, which is usually effective. (2) By elevating the citrate flask. (3) By lowering the pressure in the armlet.

If the Flow of Blood should Stop.—Immediately apply a clip at C and try to wash a little citrate into the donor's vein. To do this it may be necessary to lower the pressure in the armlet. If this is unsuccessful it does not necessarily mean that the needle itself is obstructed. In any case do not wait, but at once apply a clip at A and allow the flow of citrate to wash the tube C clear of blood. Then release A, and if no blood flows screw off the citrate. Raise the armlet pressure to 80 mm. Instruct the donor to clench his hand vigorously for a second or two, then to relax completely while counting 5 slowly, and to repeat as required. If there is no flow of blood and the adjacent veins are seen to be full, either the needle has slipped out of position or clotting has occurred. Push the needle on gently, and if this is ineffective withdraw it a little. If, after these manipulations, there is still no flow of blood, it must be assumed, provided that the veins are full, that a clot is obstructing the needle. Do not waste time in futile manipulations, but release the pressure in the armlet and withdraw the needle. If sufficient blood has not been obtained, a further attempt should be made on the other arm.

To Deliver the Blood.—Wash through the inlet tube with citrate and disconnect C from the T-piece. Transfer the spring clip from D to C. Place the flask in the thermostat; this should be filled with water at a temperature of 115° to allow for cooling while the blood is being carried to the ward. Replace the suction tube by the bellows. Fill the air-lock D with a suitable sterile, isotonic solution. I have used 10 per cent. dextrose in some cases and normal saline in the others, and make sure that there are no air bubbles in the tubing. The rest of the operation is carried out in the usual way.

The Vein of Election.—The median basilic or the median cephalic vein should be used if possible. It is courting failure at the outset to attempt entry into any other vein, even though it may appear more prominent or more conveniently situated.

The Rate of Transfusion.—At first the blood should be given drop by drop; there is no reason for hurry. If novocaine has been used, there will be no local discomfort. A good average rate is 500 c.cm. in half an hour.

The Amount Transfused.—The importance of this would appear to depend upon the nature of the case. In aplastic anæmia the best result was obtained with large transfusions, frequently repeated. But in other cases—in which there was no aplasia of the hæmopoietic system—the amount used seemed to bear very little relation to the effect produced. It is well to begin with a small amount, about 150 c.cm., and gradually to increase it, in subsequent injections.

Checking Compatibility.

It is now believed that the catastrophes associated with transfusion of blood may be avoided by careful attention to grouping. Recent work has shown that the four groups are not so clearly defined as was formerly thought to be the case. While investigating this question Jones and Glynn[4] found that, out of 40 cases examined, 7 individuals showed agglutination with blood from members of their own group. This bears out the experience of many observers that complete reliance cannot be placed on stock grouping. It is, therefore, of great importance to check compatibility in each case immediately before the transfusion is performed. For this purpose I have used the following simple macroscopic test in every case in this series. The procedure only takes about 15 minutes from beginning to end.

Collect a few drops of blood from the patient's finger with a capillary pipette. Mix with 4·5 per cent. sodium citrate, in the proportion of 1 part of citrate to 3 parts of blood, in a small receptacle such as is used for collecting blood in Strong's method of blood counting. When the donor arrives, collect a sample of his blood in the same way. Then mix thoroughly equal volumes of the two samples on a glass slide, and leave for two minutes. If after this interval no clumping is visible the test is considered to be satisfactory. If there is any suggestion of clumping, examine a drop of the mixture with the low power of the microscope. A few isolated clumps, observed after the lapse of two minutes, may probably be neglected without risk.

In every case I have used a donor of the same group as the patient—except in cases of emergency there is no reason for doing otherwise—and I have not met with any of the serious symptoms usually associated with incompatibility. With the aid of this improved apparatus it is intended to investigate the effect of blood transfusion on the course of certain diseases, and guided by the experience so gained, to pursue the research still further in the treatment of selected cases. At present it cannot be said that the conditions necessary for success with this kind of treatment have been fully investigated. Although, in the past, the results have not been such as to encourage any sanguine hope for the future development of therapeutic transfusion, it is at any rate desirable that the remedy should be given a careful and exhaustive trial before it is decided finally to abandon it, as a measure which, except in the limited field of surgical emergencies, has been tried and found wanting.

This investigation was undertaken at the London Hospital, and the cases were under the care of Dr. R. C. B. Wall and Dr. J. Parkinson, to whom I am indebted for much kind advice and for permission to record the results obtained. I would also express my thanks to Messrs. Burrell, Fysh, and Nissé for their

help in carrying out the transfusions. The complete apparatus, including the thermostat, may be obtained from Messrs. Down Bros., Ltd., 21–23, St. Thomas's-street, S.E. 1.

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THE CONTROL OF ENTERIC FEVER IN MENTAL HOSPITALS.

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AND
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IN a recent number of THE LANCET the Director of the Research Institute in Glasgow, referring to the continued outbreaks of enteric fever and the number of carriers isolated in a certain Scotch asylum, makes the statement: "Typhoid will come to occupy the position dysentery once held in our mental hospitals if drastic steps are not taken to deal with it." The mental hospitals in New South Wales during the last 25 years have had to face the same problems. The incidence of typhoid fever was reduced from 241 cases, among both patients and staff during the pre-inoculation period of 1900–14 inclusive, to 12 in the post-inoculation period of 1915–24 inclusive, or, excluding the uninoculated, to a total of two; during this period the staff and patients combined had increased from about 4530 to nearly 8700. It would thus appear that one drastic method—general antityphoid inoculation—will solve the problem.

Historical Data.

This 25-year period started with a total of six mental hospitals in New South Wales, but since 1909 three others have come into being. It was in connexion with an outbreak of enteric in the family of the sanitary (night soil) attendant and female staff of one of these newly founded hospitals (Stockton) in 1911 that antityphoid inoculation was inaugurated. This hospital had been started in 1909 by the admission of some 64 quiet old female dement transfers from metropolitan asylums. No ill-health occurred until shortly after the transfer thither of some 60 imbecile girls from the neighbouring mental hospital of Newcastle, where enteric fever and enteritis had been chronic among its imbecile and bedridden idiot population from its earliest history. Some carrier seems to have been brought across, for, in a short time, four members of the family of the sanitary attendant, three of the female staff, and two of the girl inmates developed the disease.

It is interesting to note that none of the old dements in the other division became infected or gave a positive Widal reaction, and no carriers were discovered among the many recent imbecile admissions who gave positive Widal reactions in their serums. Since antityphoid inoculation of the whole hospital—patients, staff, and families—there has been no typhoid, although the pan system of sewerage still obtains and the water-supply is still from deep wells in the sand.

Immediately after this the inhabitants of the neighbouring asylum, Newcastle, were inoculated, and only one case has been recorded since—i.e., in 1913. The newly opened hospitals of Morrisset and Rabbit Island had their inmates, both patients and staff, inoculated, and in neither has a case been reported.

The Remaining Mental Hospitals.

Parramatta and Gladesville have had isolated outbreaks and were tardy and diffident about initiating inoculation; in the latter, during one epidemic, a carrier was discovered by the Board of Health, and the former has also experienced serious outbreaks of dysentery, as many as 70 in one season. Rydalmere M.H., has had cases of enteric almost every year, and a carrier was carefully but vainly searched for; nevertheless only one case has occurred among the inoculated since 1914.

In Kenmore M.H. a patient (L.) developed typhoid in the autumn of 1909. This relatively modern mental hospital had been typhoid-free till 1906, when a case occurred, and there was one in 1907 and two others in 1909. The patient was subsequently proved by the Board of Health to be a carrier, and after the mischief started he was taken over by the civil authorities. The Kenmore outbreak in 1910, traced to him, proved to be the largest in our history; 57 cases, including 10 staff, occurred in that year. A recrudescence in 1913 brought in antityphoid inoculation, since when no case has been recorded.

An interesting epidemic took place in 1914 and early 1915 in Callan Park Mental Hospital, which up to then had had cases yearly. A careful investigation by a resident medical officer, Dr. H. H. Nowland, directed attention to a certain group of patients, one of whom was found by our laboratory to be passing almost pure cultures of the *B. typhosus* in his fæces. He also was removed and looked after by the health authorities while we started preventive inoculation. Only one case has been reported since and that occurred in a newly arrived and uninoculated attendant.

Other Data Bearing on the Reduction of Typhoid.

Examination of the records for the whole State of New South Wales shows a gradual decline of the typhoid rate from 34 per 10,000 in 1903 to about 4 per 10,000 in 1924. No doubt the gradual introduction of the water-carriage supplies in metropolitan areas is largely responsible for this, but in many bush townships and country districts the old conditions still obtain. We must also take into account the inoculation of the staffs of many general hospitals and the vigorous following up of carriers, following on a better knowledge of the carrier problem and the general efficiency of the department of public health in New South Wales. Some of our medical superintendents have ascribed our reduction rates solely to the gradual introduction of the water carriage of sewerage, but in two instances fresh outbreaks in hospitals, where for this reason inoculation had been delayed, caused a complete volte face, the laboratory receiving peremptory orders to inoculate. The water-supply, although inquired into, has rarely been blamed and has in most cases remained a constant factor, and nearly all the hospitals have their own milk-supply. Some cases were believed to have been traced to handling infected soiled clothes and in crowded wards mental patients who are carriers have many opportunities of passing infected articles about.

It may be suggested that some cases are missed and others suppressed, but it is scarcely likely that this is more so than formerly, except where inoculation completely masks the usual clinical symptoms and signs. Dr. Penfold, of the Commonwealth Laboratory, holds that "asylum dysentery" is usually of the Flexner type, in contradistinction to work done previously in these hospitals which tended to show that it was of the Shiga type. Should this be so, anti-Flexner vaccines and serum will also be made available for our patients. The staff are very rarely affected. For many years notification of these diseases has been compulsory.

Method of Inoculation.

Since the doses of 1000 million typhoid and 750 million paratyphoid A and B per c.cm. as recommended by the Army authorities are given to medically picked specially fit men, it was considered enough to make up our vaccine so that each cubic centimetre contained 1000 million organisms, 500 million typhoid and 250 million each paratyphoid A and B in 0·5 per cent. carbolic acid in normal saline, unheated. As a rule, the first dose was ½ c.cm., followed at intervals of seven days by two doses of 1 c.cm. and repeated every three years. Little trouble was experienced if

the patients were lined up out of doors, using a fine Schimmel needle which was sterilised after each dose by wiping with wool and methylated spirit; Dover's powder and phenacetin were given if the reaction proved severe. That the three years' interval might be the best compromise, apart from trench life in military services, would seem suggested by the fact that a case occurred early in 1925 in a female patient three years and seven months after her last dose.

Summary.

While there has been a more or less steady decline in the incidence of typhoid fever in the State of New South Wales since 1903, individual cases and epidemics have recurred in our mental hospitals until the advent of antityphoid inoculation. In the last ten years only 12 cases were observed and in the inoculated only two, while the hospital population has increased over 90 per cent. The little extra work and convenience entailed seem a small price to pay for the practical banishment of such a disease from mental patients.

Evidence seems to show that both patient and nurse are especially liable to infection on their first entry to a mental hospital; steps should therefore be taken to insure their adequate protection as soon as possible after arrival. This was especially true of the aments at Newcastle Asylum at all ages; the records show that deaths from intestinal complaints used to be common and are now rare.

It is with mixed feelings we have to record that in 1914–15 our lunatics were better protected against the typhoid group than many of our soldiers in Egypt and the Peninsula.

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BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT NOTTINGHAM.

(*Continued from p. 335.*)

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

WEDNESDAY, JULY 21ST.

This Section met, with Mr. COMYNS BERKELEY in the chair, to discuss the

INDICATIONS AND METHODS FOR TERMINATION OF PREGNANCY BEFORE THE VIABILITY OF THE CHILD.

The discussion was opened by Dr. T. W. EDEN, who said that it was not possible to lay down strict rules, and it was therefore of interest to consider from time to time what extent of agreement there was on the indications for inducing abortion. He did not feel the attitude should be too rigid; it should be clear to ailing women, to whom pregnancy might be a long-drawn and painful penance, that the profession had sympathetically weighed their position. He thought it might at times be right to terminate pregnancy even if the mother were not suffering from any condition which could, strictly speaking, be called disease, but such cases required the most careful consideration.

General Indications.

The lists of indications were in the text-books; he would take up a few of the more important ones:

Phthisis.—Obstetricians of all countries differed as to the necessity for terminating pregnancy in pulmonary tuberculosis. The views of physicians must be taken into account. Osler taught that a woman with arrested or cured phthisis with bad family history and poor physique ran grave risk in becoming pregnant; if there were active disease pregnancy usually hastened the process. Osler quoted Dubois: "A woman threatened by phthisis may bear the first accouchement well, the second with difficulty, the third never." The speaker was prepared to act on Osler's views. Phthisical mothers usually bore well-developed and healthy children, although tubercle bacilli could pass through the placental filter, but the expectation of life was not normal. Couvelaire stated that 38 per cent. of children born to mothers with active phthisis did not survive their first month, being born with a "diminished coefficient of vitality." Dr. Ward, tuberculosis officer for South Devon, found that among 372 such infants 34 per cent. became definitely tuberculous and a further 21 per cent. were suspect; of the 34 per cent. one-fourth died. He also concluded that children of a tuberculous mother were seven times more likely to become tuberculous than were those of healthy mothers, and that of tuberculous women who became pregnant over 50 per cent. were made definitely worse, while 19 per cent. were improved. It was not to the advantage of the community that children should be born with a risk of tuberculosis seven times greater than the normal.

Chronic Nephritis.—Pregnancy was always attended by certain very definite risks in cases of chronic nephritis. Complete breakdown of the renal function might occur, leading up to uræmic convulsions; an intercurrent attack of acute nephritis might supervene, and, if these were survived, the working capacity of the kidneys was permanently reduced. Accidental hæmorrhage, especially the toxæmic form with interstitial hæmorrhage and necrosis of uterine muscle, occurred in a relatively high proportion of cases. The fœtal risks were also very heavy; about 40 per cent. died from prematurity or from the results of transplacental intoxication. Nevertheless it must be remembered that these conditions were risks and not certainties; the time might come when we could distinguish more clearly the factors which made prognosis grave. The hydræmic type of nephritis was much more serious than the azotæmic type. In the absence of dropsy in the early months a first pregnancy might be allowed to continue if the blood pressure and the adequacy of renal elimination were most carefully watched. In subsequent pregnancies early abortion should be induced if a serious renal breakdown had occurred before. In any case the occurrence in early pregnancy of albuminuria and œdema of the renal type justified induction.

B. Coli *Infection of the Urinary Tract.*—This did not lead to serious developments in its subacute form, although it might cause an acute outbreak of fever during the puerperium.

Diabetes Mellitus.—The introduction of insulin had reduced very greatly, without entirely eliminating, the risks of diabetes in pregnancy. Glycosuria and lactosuria were not uncommon, but unless accompanied by an increase in the blood sugar and such characteristic symptoms as polyuria, thirst, and wasting, were not diabetes and were always amenable to dietetic treatment.

Heart Disease.—A young woman with a well compensated valvular lesion would usually pass through one and possibly two pregnancies without serious inconvenience. Repeated pregnancies damaged the heart and reduced the expectation of life. Abortion might be justified by signs of failure in the early months or by a history of serious breakdown in a previous pregnancy.

Diseases of the Nervous System.—He had ended pregnancy on the advice of a psychiatrist in cases of former puerperal insanity or border-line cases with a bad family history. Such cases were pre-eminently suitable for team work. Chorea was not uncommon in pregnancy and was usually amenable to rest, careful feeding, segregation, and arsenic. Occasionally abortion might be justified in severe obdurate cases with pyrexia. He described a case where the patient had been told that it would be most dangerous to have another child, with the result that she and her relatives

were so terrified that no reassurance had any effect, and abortion was induced. It could seldom, if ever, be right to tell a patient that it would be impossible for her to survive another pregnancy.

Obstetric Indications.

The obstetric indications were comparatively few and unimportant.

Toxæmic Vomiting.—By this he meant persistent vomiting with definite signs of toxæmia, such as heavy albuminuria, raised blood pressure, pyrexia, and wasting. It was rare for this to be incurable by medical means.

Vesicular Mole and Missed Abortion.—These were invariable indications for induction of abortion, and the castor oil and quinine method was eminently suitable.

Hæmorrhage.—Very free hæmorrhage in the early months of pregnancy did not in all cases result in abortion. Persistence of bleeding was more serious for the ovum than an initial smart hæmorrhage.

Methods of Terminating Pregnancy.

Dr. J. D. BARRIS surveyed the various methods of inducing abortion. These were: (1) the slow methods of dilatation, plugging, and the use of bougies and drugs; and (2) rapid dilatation, vaginal hysterotomy, and Cæsarean section. The uterus should be allowed to expel its contents spontaneously; to drag out the ovum by force brought a risk of hæmorrhage and sepsis. His choice was determined by the urgency of the need for termination and by the stage of the pregnancy. Before the end of the third month the fœtal head was small and easily collapsible, and rapid methods might be used, especially as urgency was more likely early in the pregnancy. Immediate evacuation was the best of these, using the laminaria tent. Strict surgical precautions should be taken, and the instruments should have no sharp points. The curette should be blunt. Ether or gas-oxygen were better than chloroform. After the end of the third month evacuation was more difficult and portions of the fœtus were liable to be left behind. Dilatation and evacuation were therefore very dangerous, although they might be used in urgent cases. Vaginal hysterotomy made it possible to empty the uterus completely and was preferable to Cæsarean section. He had not found castor oil and quinine so reliable as the small bag and pituitary extract. For vesicular mole he had found Cæsarean section very satisfactory.

Ethical Considerations.

Prof. LOUISE MCILROY (London) pointed out that generalisation on the question of when premature termination was desirable was useless, and pleaded for the treatment of the patient rather than of the disease. Nevertheless she regarded induction as a dire necessity and as a confession of failure, and before resorting to it every factor in the patient's condition should be considered. Fear of pregnancy was largely due to a deep-seated idea that pregnancy was a calamity, and education would in time correct this. We now had many good substitutes for artificial abortion. No one, for instance, induced nowadays for retroverted uterus or diabetes. Sympathy for a tragic case should not betray the practitioner into criminal action. Cases of hyperemesis who were worried by bad home conditions were often relieved by isolation, and even when vomiting was due to toxæmia she did not recommend induction. Phthisical patients should promise not to have another pregnancy after abortion. An artificial pneumothorax should be tried before abortion was induced. The slow X ray method of sterilisation was satisfactory for them. She had given up sterilisation after Cæsarean section for heart disease. Heart disease rarely caused death at the puerperium, and the proper treatment was not induction, but rest for the last ten weeks. This was often a godsend to a working woman. Induction was indicated if nephritis was very far gone, and in pyelitis in late pregnancy when the patient had only one kidney left. Toxæmias of pregnancy or hydramnios were hardly ever indications, and two of her patients with encephalitis lethargica had been no worse for their confinement. Acute fear, and the mental state of a woman who was pregnant through rape, were not indications for artificial termination. Methods should be slow. Tents reduced the risk of sepsis and were preferable, and she had found the "penny balloon" method a good one. Rapid methods were only admissible if the ovum were dead.

The Mental Indications.

Dr. R. H. COLE held that mental symptoms hardly ever justified induction of abortion, but this might be performed if an obsessional fear was so overpowering as to endanger life. He relied on a change of surroundings.

Tuberculosis.

Dr. R. A. YOUNG said that the question of abortion for tuberculosis was very controversial and hedged about with aphorisms, which, however, were based rather on individual feeling than on statistics, and took no account of whether the disease were active or arrested. If it had been long arrested the patient might proceed, but even if it were active, induction was as likely as labour to cause death. The physician should consider all factors and perform all tests, and then consult with the psychiatrist and the obstetrician. Rest in bed would often dispose of symptoms that seemed to indicate interference. Treatment must not be stopped because the patient was pregnant, but rather it should be pursued more energetically. Any operation was to be deprecated. Pinard's aphorism, "Treat the disease and manage the pregnancy," contained much real wisdom, as also did the statement "Prevention is better than abortion."

Cardiac Indications.

Dr. F. W. PRICE spoke on the cardiac indications with reference only to the question of risk to the mother's life. Pregnancy, labour, and the puerperium laid a strain even on the healthy heart, and a certain amount of relative tricuspid incompetence might occur from time to time. "Crepitations" over the bases, which disappeared after a few breaths, did not indicate œdema of the lungs. Varicosity of the veins, shortness of breath after the twenty-eighth week, or œdema below the knees were not indications of cardiac failure in pregnancy, nor were displacement of the apex beat and left border, increased transverse diameter, or a systolic murmur in the tricuspid area. On the whole heart cases bore child-bearing surprisingly well. It was essential to remember that the cause of cardiac failure lay in the myocardium, and it was of extreme importance to find how the heart responded to effort. Prognostic indications of value were the modification of the pulse and blood pressure, the size of the heart, the pulse pressure in aortic incompetence, the length of the presystolic murmur, and the presence and length of a diastolic murmur in mitral stenosis.

Irregular Action of the Heart.—Pregnancy should be terminated in complete auriculo-ventricular or inter-ventricular block if the patient had syncopal attacks. When a pulsus alternans was not associated with a severe grade of tachycardia it called for complete and prolonged rest, and if this be impossible or unsuccessful abortion should be induced. In auricular fibrillation it depended on the ventricular rate, the degree of cardiac failure, and the response to digitalis therapy. In auricular flutter it depended on the response to treatment. When there was paroxysmal tachycardia the factors for consideration were: (1) coexisting chronic myocardial or valvular disease and its nature and degree; (2) the duration of previous attacks and the ventricular rate and degree of failure in them; (3) reaction to treatment.

Chronic Valvular Disease.—Mitral stenosis was the most serious form, and abortion was justified in severe cases with very small pulse, and a murmur beginning immediately after the second sound and continuing all through ventricular diastole and auricular systole; or if there were also auricular fibrillation, mitral incompetence, or chronic adhesive pericarditis. Pregnancy might continue in cases of mitral incompetence

and aortic stenosis if not due to primary chronic endocarditis. Abortion was justified in severe aortic incompetence with great alteration in pulse, blood pressure, and size of heart, especially if the patient was apt to faint on exertion. In congenital heart disease it depended on the size of the heart and subjective symptoms.

Chronic Myocardial Disease by Itself.—The indications for consideration were the size of the heart, syncopal attacks, and the presence of irregularities.

Estimation of Cardiac Failure.—Four points should always be considered: (1) the degree of cardiac failure; (2) at what stage of pregnancy the symptoms supervened; (3) the immediate cause of the present attack; and (4) response to treatment. If the failure were slight the patient could probably go to term without risk. If moderate failure occurred during the first three months, without some temporary cause, she would probably be unable to go through, but an attempt might be made. Rest was imperative. If severe failure occurred in the first half of pregnancy the patient was in danger, but a rest of some months in bed often had surprisingly good results. Pregnancy should be terminated if extreme cardiac failure supervened at any time, but apart from this a reasonable period of rest and therapeutic measures should always be tried. In any case the heart lesion should be treated first in order to secure better conditions for the operation of abortion.

Discussion.

Dr. R. C. BUIST (Dundee) pleaded that general practitioners should not foreclose the discussion of a case by expressing an absolute opinion.

Mr. H. EVERS (Newcastle) said he thought it was most important for the profession to take up a conservative attitude towards what he preferred to call embryocide. The conditions where it had proved its value beyond doubt were extremely few. He did not see why pregnancy and labour should be regarded as an ordeal, and regarded the matter as legal and moral, not ethical nor professional: the patient's reasons for desiring abortion should never be accepted. He surveyed the indications for abortion and concluded that the only absolute indications were vesicular mole and nephritis with severe clinical manifestations. The infants of phthisical mothers should be segregated from birth. Cases of heart disease, vomiting, and nephritis could nearly always be carried on till the child was viable. His reasons against the induction of abortion were the very great importance now attached to intra-uterine life, the improvements of modern treatment, and the fact that the so-called dangers of pregnancy in certain conditions were mostly speculative and groundless.

Dr. B. DUNLOP (London) said that for him it was sufficient indication if the mother steadily wished it in spite of all persuasion. He was convinced on sociological grounds that it was not in the public interest that medical practitioners should not be free to induce abortion on economic and eugenic grounds.

Dr. J. S. ENGLISH (Singapore) described as very satisfactory the method of induction by inserting a No. 23 stomach-tube; it was easier to sterilise than gum-elastic, required no anæsthetic usually, and was very sure.

Mr. L. C. RIVETT (London) said that in his limited experience of phthisical cases it was the puerperium that was detrimental, and he agreed with Dr. Young that only in very severe cases of active tuberculosis was interference warranted. The best method to sterilise such patients was X rays, as any anæsthetic was so bad for them. He considered that gross deformity of the pelvis, necessitating Cæsarean section at term, was also an indication for abortion if the mother so desired. At Queen Charlotte's Hospital he had found heart disease far the most serious complication; cases did not respond to treatment in any way and many died—the majority undelivered. He therefore regarded it as a strong indication for early abortion, and thought a miniature Cæsarean section with occlusion of the tubes was the best method. Heart cases stood the operation well in early pregnancy.

Dr. N. LOCK (Exeter) said he had found Cæsarean section less strain than normal labour; heart cases always took a well-administered anæsthetic without difficulty.

Mr. RIVETT replied that he had not found Cæsarean section make the slightest difference either way in his heart cases. He agreed that they stood anæsthetics well and deprecated spinal anæsthesia for them.

Mr. COMYNS BERKELEY said he regarded it as perfectly disgraceful ever to tell a patient that she must not or could not have another child. He agreed with Dr. Barris in using a quick method of emptying a small uterus where the hæmorrhage could be controlled. The stomach-tube method was good, but liable to lead to very severe bleeding.

Dr. BARRIS, in reply, said the weak point in slow dilatation in the first three months was that it often produced no effect and had to be constantly repeated, with the probability of having to give an anæsthetic in the end.

Dr. EDEN, in reply, said there was no such crime as fœticide, and he was more and more impressed with the necessity for taking the broadest possible view. If the public could feel that they would get sympathetic consideration from the medical profession they would not go so much to the criminal abortionist. We could not divest ourselves of responsibility for the generation we were bringing into the world.

THURSDAY, JULY 22ND.

THE PLACE OF INDUCTION OF PREMATURE LABOUR IN THE TREATMENT OF CONTRACTED PELVIS.

Mr. J. BRIGHT BANISTER, opening the discussion, said that he suspected that Cæsarean section was being employed oftener than was justified in cases of pelvic deformity, and that induction had fallen into unjustifiable disrepute. His conclusions were based on 745 cases of induction. The maternal mortality had been 1·3 per 1000, so that there was no great risk to the mother. The fœtal mortality had been 12·6 per cent., and analysis of the figures revealed the enormous advantage of obtaining natural delivery, the mortality in such cases being less than 8·5 per cent., while among the forceps cases it was 23·4 per cent. Of the fatal cases posterior positions were in high percentage. The fœtal mortality-rate dropped as the date of induction advanced, except at the end of the series, where the induction had been too long delayed. Induction had failed in 24 cases. The morbidity-rate was no higher than in normal cases, being just under 4 per cent. The most important complication was prolapse of the cord, which was accompanied by a very high fœtal mortality, but this could be attributed as much to the contraction as to the induction.

The Date of Induction.

Antenatal examination revealed contraction early in pregnancy. If the true conjugate were 3¼ in. or less induction was contra-indicated. The optimum time for induction was estimated by careful consideration of the relative sizes of the presenting part and pelvis, the shape of the pelvis, and the position of the head. Such patients should be seen weekly. A generally contracted pelvis presaged an earlier induction than a flat one. The position of the occiput was an important factor in oblique contraction; if on the narrow side the difficulties would be greatly increased. When bimanual examination failed to make the head descend appreciably the patient should be examined under an anæsthetic and the disproportion was then usually found to be less than was thought, and in this case induction should be advised in 14 days' time. If no engagement could be obtained induction should be done at once. The moulding powers of Nature made it safe to wait until the head would just not enter the brim. He did not believe that patients would resent or practitioners grudge these careful examinations. Induction also gave valuable information as to the capacity of a uterus to deliver itself and provided grounds for deciding whether to leave or induce at the next parturition. Every induction must be judged on its own merits. Induction

should not be done lightly, but he urged its wide use, because it was simple, safe, and unaccompanied by untoward complications and sequelæ, because it gave the only actual test of the power of the uterus and was an attempt to procure the highest aim of the true obstetrician—a natural parturition.

Mrs. RHODA ADAMSON (Leeds) said that her private patients usually had symmetrical pelves, but hospital cases were more liable to irregular rickety contractions. The small flat pelvis was suitable only for Cæsarean section, while the simple flat pelvis permitted labour surprisingly easily if left to Nature. The best case for induction was one with a moderate degree of contraction. It should be remembered that a child's head tended to resemble that of its father, and it was worth while to inspect the patient's husband. The external measurements were far less important than the relative size of head and pelvis. The further the pregnancy was allowed to go the better for the child. The doubtful case would very often deliver itself if allowed to try, and so she never performed Cæsarean section before labour in cases of contraction. Immature girls with small pelves should be treated by induction because a normal delivery resulted in general development and enlargement of the pelvis, while Cæsarean section, in addition to the wound damage, left the pelvis small.

Discussion.

Dr. ENGLISH said that contracted pelvis was relatively rare in Singapore owing to the absence of rickets. Some text-books stated that induction from the thirty-eighth to the fortieth week was no great advantage: this was not the case. Cæsarean section was best performed during labour as the lower segment incision was then much easier to make. It was very helpful if practitioners inducing labour in a primipara would give her a note for the guidance of the doctors who attended her subsequent labours.

Prof. LOUISE MCILROY agreed that Cæsarean section should only be done when labour had started, and that the number of a practitioner's operations steadily diminished as his judgment grew. Cæsarean section was a mutilation, done from dire necessity only. She had found that the outlet was the dark horse of obstetrics; the pelvic brim could be estimated antenatally, but trouble with the outlet was usually revealed too late to do anything. Some method of measuring it would be a great advance in obstetrics. She hardly ever induced before the thirty-eighth week because the immature child stood labour badly and prolapse of the cord was more likely to occur. It was difficult, but very necessary, to know the exact date of the pregnancy. Two very difficult problems were the post-mature fœtus and the breech with extended legs. How was the relative size to be estimated in the latter case? Hurrying up labour was very dangerous; patients should not be worn out by bearing down and pulling. A long, easy labour was much better for mother and child. She urged sedatives in labour, sitz baths, and morphia; she had never seen any ill results from morphia. Measurements were of little importance; the whole thing depended on the size and degree of flexion of the head. She had found that pregnant women objected to vaginal examinations, and she regarded this as a natural defence against the dangers of interference with vagina and cervix late in pregnancy.

Methods.

The stomach-tube was both useful and safe. X rays had shown it curled up right to the top of the uterus, covering much more space than a bougie ever could. A penny balloon filled with water from a Higginson's syringe was remarkably successful when the head was high, and was very safe. The de Ribes bag was most unsatisfactory. Induction by drugs (castor oil and quinine) was safe to recommend to midwives in slight cases of contraction.

Mr. EVERS said that the difficulty was with the borderline primipara where there was nothing to guide the practitioner. Help could be obtained from measurements, particularly the external conjugate. The asymmetrical pelvis was the least suitable for induction. He emphasised the value of examination under an anæsthetic. An analysis of 150 cases of Newcastle primiparæ with head above the brim showed that 12 per cent. had come to Cæsarean section—far too high a figure.

Mr. RIVETT said that in many cases it was difficult to say whether there was an actual contraction, and the size of the parents was very important. The very fat young primigravida had fat also in the pelvic tissues and might require Cæsarean section even if the pelvic measurements were normal. The weight of the baby tended to increase with the third, fourth, and fifth pregnancies. It was a great mistake to label a woman "normal multipara." The weight of the baby at birth should always be recorded definitely. The figures of induction cases at Queen Charlotte's Hospital gave corresponding results to those quoted by Mr. Banister; the mortality at 35 weeks and under was over 50 per cent.

Dr. S. W. M. JONES (Wolverhampton) pleaded that general practitioners should give more consideration to induction. There was a prevalent idea that it was a "messy business." He had been disappointed in the castor oil and quinine method, which often failed at the thirty-seventh or thirty-eighth week.

Dr. A. B. DANBY (Birmingham) asked what methods Mr. Banister had employed. At the Birmingham Maternity Hospital a No. 4 œsophageal tube had proved satisfactory. The time factor was very important and was shorter with the tube than with bougies. Quinine and castor oil had proved unsuccessful in 31·6 per cent. of cases on the district. Deflexed heads would often go through quite well when rotated by a pad and binder. A man with a large head should never marry a woman with a small pelvis.

Dr. T. A. RICHMOND (Stoke) said that there was not a single maternity bed in Staffordshire. His rough and ready method, under these circumstances, was "when in doubt, induce." The types of case that arose were (1) the multipara with a bad obstetric history, (2) the primipara with small pelvis, and (3) the post-mature case, usually a big athletic woman who was left to go to time and then went over. He had had very good results from giving pituitrin at the time when labour was expected.

Mr. COMYNS BERKELEY said that his experience coincided with Mr. Banister's. A miscarriage in early pregnancy was always attributed to vaginal examination if one had been done, so that it was not only useless but impolitic to attempt any extensive examination before the thirty-sixth week. Analysis of cases of induction at the City of London Hospital had shown the danger of inducing too early.

Prof. MCILROY, in reply to a question, said that when the placenta was attached to the anterior wall it was easy to locate it antenatally by the position of the souffle.

MRS. ADAMSON, in reply, said that a tight binder might be very useful. The students at Leeds were being taught to examine rectally. Castor oil and quinine was not effective before the thirty-eighth week, but was worth trying in the later weeks. In assessing the dose it was important to find out the habit of the patient as regards purgatives. In the factory class of woman the weight of the baby increased until the mother was about 30. She did not regard Cæsarean section, by the paramedian incision, as a mutilating operation, but patients should be kept under supervision in subsequent pregnancies.

Mr. BANISTER, in reply, said he took strong exception to the phrase "Once a Cæsarean always a Cæsarean." He believed that contraction at the outlet was very definite, but rare; it would never be recognised by measurements, but could be appreciated manually on examination under anæsthesia. He regarded a breech with extended legs in a primigravida as a definite and legitimate indication for Cæsarean section. He did not think it possible to precipitate a miscarriage by taking pelvic measurements, and it was valuable to know them early. Every vaginal examination performed in pregnancy must be justified by special circumstances and should not be done until induction

could be immediately carried out. He regarded rectal examination as a very grave retrograde step. The method he considered best was the gum-elastic bougie No. XII.; three, if possible, with surgical cleanliness, and no additions, induced labour in from 48–60 hours. Castor oil and quinine had a fair measure of success at full time, but was not successful for premature labour. He had ceased to regard pituitary extract as dangerous with the advent of the 10 per cent. solution, and had had no ill-effects from ½ c.cm. of this solution given three-hourly up to 1 c.cm.

FRIDAY, JULY 23RD.

At this meeting of the Section a discussion on the

CAUSES AND TREATMENT OF UTERINE HÆMORRHAGE WITHOUT GROSS PHYSICAL SIGNS.

was opened by Prof. BECKWITH WHITEHOUSE (Birmingham), who said that it was somewhat strange that so little was still known about the facts at the basis of the function of menstruation. Nevertheless, there were signs that we were nearing solid ground upon which we could build a structure of sound physiological and pathological knowledge.

The Menstrual Function.

Our knowledge of the causation and treatment of pathological uterine hæmorrhage must depend primarily on our views on menstruation. Many important advances had been made during the last few years, and the recent work of Novak had corroborated the speaker's views of 1914, that at each menstrual function there was a definite shedding of portions of the superficial endometrium, and that the discharge consisted of the autolysed products of this necrosis. Prof. Whitehouse still believed that the secretion of the uterine glands was concerned in the breaking down of the menstrual clot composed of blood coagulum and tissue débris, and the work of W. Shaw had confirmed this view. The only modification the speaker desired was that in most cases autolysis began while the separating endometrium was actually in anatomic contact with the deeper layers, and while the extravasated blood was intimately associated with the epithelial débris. Thrombolysis was by no means complete, and although the lay mind did not recognise as clots minute coagula in process of solution, it was the exception for clots to be entirely absent throughout the whole menstrual process. He agreed with Novak that the desquamation of the mucosa was "a crumbling molecular process," bits of granular degenerated mucosa being shed until nothing was left but the "basalis" and perhaps a few "spongiosa" nests.

The Nature of Menstruation.

In the light of the most recent research menstruation must still be regarded as an afertile abortion of the non-pregnant decidua. It corresponded with the death of the unfertilised ovum, and the commencing retrogression of the corpus luteum. Rupture of the follicle and the escape of its liquor marked the beginning of the pre-menstrual hypertrophy of the endometrium, which should correctly be called the "menstrual decidua." It was still unknown whether the stimulus was provided by the hormone of the liquor folliculi, that of the ovum and its attached cells, or that of the developing corpus luteum.

He considered the name "menstrual lochia" more appropriate for the discharge. Menstruation removed the inhibiting effect of the corpus luteum upon rupture of succeeding follicles, and the cycle was re-established. The old theory that the menstrual function was necessary for the reception of the ovum was a pure myth. The explanation for fertility during lactation, after the menopause and during pathological amenorrhœa was the same; an ovum maturing late must produce either an afertile abortion (post-menopausal functional hæmorrhage) or else, if it happened to meet a spermatozoon, a post-menopausal pregnancy. There was a striking similarity between the menstrual abortion and one during early pregnancy, and, in fact, menstruation was simply the disorderly action of a disappointed ovum.

Periodicity of the Menstrual Function.

To understand its remarkable periodicity it was necessary to remember that *Homo* was the most highly-specialised organism in existence. Evolution had altered woman's sexual rhythm somewhat as scientific breeding and care had altered that of the domestic fowl. The cause both of the monthly abortion and of the irregularity at the beginning and end of the sex-life lay in the ovarian follicles. Factors that interfered adversely with the maturation and discharge of the ovum were reflected in the menstrual rhythm. Halban induced menstruation and altered the rhythm by excising the corpus luteum. Most experimental mammals had been changed by domestication from a monœstrous or diœstrous to a polyœstrous rhythm. Confusion had arisen partly because in *Homo* fertilisation could take place at any time following the pre-œstrual abortion; the œstrual period was prolonged to reach and include the next pre-gravid state. This variation must not influence consideration of the rhythm in lower types; the human sexual instinct was independent of the sexual organs. Finally, the accessory genital glands, such as the thyroid and pituitary, were of greater importance in *Homo*. Although woman was "built round her ovaries," these were only one link in the metabolic chain.

The Uterine Secretion.

About the function of the glands of the corporeal endometrium little was known. Experiments showed that in some animals at least the uterine secretion was reabsorbed and helped to produce œstrus, but it was unlikely that it played any great part in producing the human sex instinct, which persisted after the menopause and even after removal of the sexual organs. Possibly, however, it caused the pelvic hyperæmia of menstrual abortion and of early pregnancy, and autolysed the necrosed decidua and coagula when fertilisation did not occur. It could occur without menstruation, but was always associated with it. Some of the confusion that existed about the nature of menstruation was due to the presence of these two separate functions of menstrual hæmorrhage and uterine secretion, of which the second was in a sense complementary to the first.

The speaker described experiments in the production of artificial menstruation by excising the corpus luteum from the right ovary of a patient during an exploratory operation.

Functional Pathological Uterine Hæmorrhage.

His conclusions were based on 200 consecutive cases. Pathological hæmorrhage usually fell into one of four groups, in which the periods were frequent, prolonged, severe, or irregular.

Epimenorrhœa was the clinical manifestation of a hyperactive sex-complex. The ovaries, working at high pressure, produced ova of low vitality, and frequent abortion resulted. They were usually hyperplastic and often polycystic. The condition was almost physiological at the beginning and end of sex life. Curettage was useless. The remedy probably lay in inhibiting the accessory sexual glands. The speaker was investigating the injection of fresh corpus luteum extracts.

Menostaxis, a prolonged period, was analogous to an incomplete fertile abortion. Curettings from different parts of the uterus showed the normal post-menstrual phase, active superficial necrosis, and marked pre-menstrual decidua. Chronic inflammation of the endometrium predisposed, but was not the only cause. He suspected the corpus luteum, although curettage frequently cured.

Menorrhagia, or "flooding" that nevertheless kept within normal time-limits, was essentially due to uterine "insufficiency," which might be the result of many diverse factors. It was associated with chronic sub-involution and metritis, with senility and with general debility, and might be due to any cause which

interfered with normal contraction and produced uterine stagnation. It was much more serious than menostaxis, and could soon produce severe secondary anæmia. Curettage was a temporary palliative that was sufficient in puberty, but at the menopause the most useful remedy was radium.

Metrostaxis, a term the speaker preferred to "metrorrhagia," included all hæmorrhages independent of the menstrual cycle. The blood was bright red, often with large clots—quite different from the menstrual lochia. The endometrium generally showed hypertrophy, which might be diffuse or localised in a single polypus, and this pointed to a deeper underlying cause. He thought the answer would appear when more was known about the relation of the autonomic nervous system to the uterus and the ovaries. Labour or abortion (whether fertile or afertile) might be set up by mental shock; he cited as a typical case that of a woman who had sustained a motor accident. It was uncertain whether the uterine hæmorrhage was due to the mental shock alone or to the attendant hyperthyroidism. Metrostaxis was comparable to gastrostaxis, which was also peculiar to women and bore no relation to the menstrual rhythm. Müller's sympathetic vaso-motor centres in the tractus intermedio-lateralis of the medulla, which Castex had shown to be also vasotropic, were probably intimately concerned with these functional hæmorrhages, and these observations opened up a wide field of research. The peculiarly embryonic nature of the endometrium made it exceptionally liable to outside changes, and gynæcologists had been too eager to expect abnormal appearances such as hyperplasia as a cause, rather than as a result, of continued bleeding. Estimation of the blood tolerance of sugar and of the basal metabolic rate provided important data in the investigation of uterine hæmorrhage at periods of unstable equilibrium, especially puberty and the menopause.

Discussion.

Prof. FLETCHER SHAW (Manchester) said that in the past it had been the custom to look for the cause of uterine hæmorrhage in the uterus itself; now a much broader view was taken, and physicians had to remember the types of disordered physical function that might occur in or outside the uterus. Disordered hæmorrhage fell into four groups: (1) general medical, (2) disordered physiological function, (3) pathological conditions of the endometrium, (4) pathological conditions of the uterine body. All our knowledge of the third group had recently had to go on the scrap-heap, as many of the changes regarded previously as pathological were now known to be due to the physiological cycle, while others still classed as pathological were probably due to some cause outside the uterus. He cordially welcomed the new terms suggested by Prof. Beckwith Whitehouse, provided other teachers would accept them, and pleaded for a simplified nomenclature for group (4), which could be divided into three types:

(*a*) *Chronic Metritis.*—In a normal healthy uterus there was a balance between the muscular activity and the blood flow through the vessels. In chronic inflammation the muscular tissue was destroyed and replaced by fibrous tissue, so that an inert mass was interposed between the muscle cells and the blood-vessels, resulting in diminished contractile power.

(*b*) *Subinvolution* was much commoner, the history of the hæmorrhage dating from a confinement. In this case there was a large mass of elastic tissue outside the blood-vessels. There was no abnormal fibrous tissue—hence the term "fibrosis" was unjustifiable—and no decrease in the muscular tissue. This inert elastic tissue underwent, in time, vitreous degeneration, so that it might be absorbed, but if this did not occur it underwent vitreous hypertrophy and regained its staining and elastic properties. Sometimes hæmorrhage was not complained of in these cases until the menopause, when the inert body got more and more play through the atrophy of muscular fibres. Chronic metritis and subinvolution often occurred in the same uterus, because the same inflammatory process that caused the latter would also cause the former.

(*c*) *Hypertrophy.*—A similar syndrome might occur in a nulliparous woman, and the hæmorrhage was then found to be due to a very thick endometrium, or else to some common cause which had produced both. There was no pathological change save hypertrophy of every tissue, which was probably due to an excessive uterine contraction every month.

Mr. W. W. KING (Sheffield) said that endometritis was a ridiculous term that had been used as a scrap-heap for diagnosis; it had put back for years the proper conception of menstrual anomalies. He queried the necessity of retaining the term "chronic metritis," for which "chronic subinvolution" could usually be substituted. In treatment lutein seemed the best thing for functional hæmorrhages, but glandular extracts were useless by the mouth, except thyroid. Individual cases differed markedly in their reaction to endocrines. Injection of hæmoplastic serum had stopped the bleeding of young girls with villous conditions of the endometrium, and in some cases seemed to do permanent good. Cotarnine was very useful in hæmorrhage without any gross physical signs. Out of 144 cases treated with 1300 to 2000 m.c. hours of radium 13 per cent. had further bleeding and 26 per cent. suffered from menopausal symptoms. As radium was supposed to act mainly on the endometrium and not on the ovaries, this raised the question of an internal secretion of the former.

Dr. RHODA ADAMSON (Leeds) said that she had found that girls sent away to the seaside to boarding-school were apt to get bad floodings, which were not improved by the school doctor's treatment, but which cleared up when they came home. She had discovered that it was a recognised thing that professional ballet dancers and acrobats had amenorrhœa or almost negligible menstruation while working, but when resting they returned to their ordinary rhythm.

Dr. J. S. ENGLISH said that he had met cases of amenorrhœa in Singapore who had normal menstruation on returning to England. He had found that large doses of X rays gave very good results.

Mr. L. C. RIVETT (London) said he had found that simple curettage gave temporary relief only. He had not found it possible to separate Prof. Fletcher Shaw's first and second groups clinically, except that a bleeding uterus might be large and flabby or small and hard.

Dr. M. EAMES said she had had most varying results from thyroid administration, and asked how to treat excessive losses at puberty in girls with pulsating thyroids.

Dr. S. W. MASLEN JONES (Wolverhampton) said that in the absence of modern facilities for treatment he had found good results follow irradiation over the ovarian region, especially for young girls; one case only had failed to respond, and she had subsequently been cured by irradiation of the thyroid. For older cases he had successfully used the intra-uterine application of glycerine, which seemed to start involution off again.

Dr. T. H. RICHMOND (Stoke) referred to the piling up of cells within the glands, without rupture of the basement membrane, so often found in curettings, and to the good effects of radium on these cases, as if there were some local malignancy.

Dr. COMRIE SHARP (Cape Town) said he thought obstetrics and gynæcology were very liable to fashions, and the latest of these was treatment by medicines—e.g., pituitary extract, which he considered to be a most dangerous drug—before the child was born.

Mr. COMYNS BERKELEY also welcomed the new terminology, and urged that all teachers should adopt it. He had found 250 mg. of radium for 20 hours a magnificent treatment for these conditions, but the possibility of sterilisation must not be forgotten. Utriculoplasty had given excellent results, and some of his cases had successfully borne children after it. Curettage was the commonest and most hopeless operation for hæmorrhage.

Prof. SHAW, in reply, said that chronic metritis and subinvolution were clinically indistinguishable, but the former term could not be dropped, as the condition might occur in nulliparous women. He believed that Dr. Adamson's schoolgirls owed their trouble purely to the nervous strain; they were generally working for examinations at that time. He treated them by curettage, something to stimulate the uterine muscle, such as pituitary, and by taking them away from school. The only real treatment for subinvolution was another pregnancy, but even then normal involution could not be guaranteed. Some cases could be treated in the same way as the schoolgirls, and could often be tided over until the menopause approached, when it was better to get rid of the uterus. He was rather afraid of radium, since no one could tell him how it acted, and so many cases were associated with old chronic pelvic lesions that he thought it just as well to remove the organ altogether. No form of treatment should be used until the possibility of insidious malignant disease had been excluded.

Prof. WHITEHOUSE, in reply, said that Dr. Eames's cases should be treated by inhibition of the thyroid by X rays. These did less damage to the thyroid than to the ovary as they inhibited without destroying. Curettage should be a diagnostic procedure always, and full menstrual details should be given to the pathologist with the specimen. Pathologists had to be educated in the newest work on the endometrium.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

WEDNESDAY, JULY 21ST.

The first meeting of this Section was held in conjunction with the Section of Ophthalmology, Dr. E. FARQUHAR BUZZARD, President of the Section of Neurology, being in the chair, when Prof. EDWIN BRAMWELL (Edinburgh) opened a discussion on

Migraine.

He began by describing the characteristic symptoms associated with an attack of migraine. Headache, he said, was often the only symptom, and vomiting might occur without the occurrence of headache. Migraine and epilepsy had many points in common; they were both paroxysmal and periodic, they usually occurred in early life, and there might be a family history of predisposition. Following both conditions an aura might be present, as well as cumulative effects—i.e., after a period of freedom a bout of severe attacks followed. The attacks in both migraine and epilepsy were more liable to occur at the time of the monthly period and they sometimes ceased entirely during pregnancy. Occasionally one might be substituted for the other. In spite of the analogies between the two conditions, however, Prof. Bramwell maintained that the resemblance was merely superficial and that they were rarely met with in combination. If migraine developed in middle life an underlying causative condition should always be suspected. The predisposing factor in migraine appeared to be an inherent instability of the nervous system, while among exciting causes of an attack were intense mental concentration, fasting, eyestrain, tobacco, anxiety, and worry. Vascular disturbances were often observed, including pallor or flushing, hardening of the temporal artery, and alterations in the calibre of the retinal arteries. In Prof. Bramwell's opinion the actual headache was the result of a release from spasm of the meningeal vessels; since the brain was insensitive, the pain must be referable to the meninges. The prodromal symptoms could be accounted for by spasm of the meningeal vessels and the ensuing headache by their subsequent relaxation. There had also been a tendency to attribute migraine to an error of metabolism, while such symptoms as low blood pressure, polyuria, brachycardia, and low blood-sugar had been said to suggest an endocrine factor. Among other ætiological theories were congenital narrowing of the foramina of Monro, which varied from time to time, and temporary enlargement of the pituitary gland. Treatment was a difficult problem. It was necessary that every case should be subjected to a full investigation, with consequent elimination of any exciting factors. Among the promising forms of treatment were peptone therapy, luminal, bromides, and nitrates.

Mr. W. H. MACMULLEN (London), in opening the discussion from the standpoint of the ophthalmologist, commented upon the various visual symptoms so frequently associated with attacks of migraine. Visual disturbances were the commonest of the subjective sensory phenomena. Although they varied, one feature was frequently present—namely, a loss of sight in part of the field of greater or less extent. These scotomata might develop suddenly to their full extent, or might start at a small spot and gradually spread. Other subjective symptoms were migrainous spectra, the most important feature of which was a zig-zag or angled character. Sometimes a scotoma, with or without associated spectrum, extended across the middle line of the visual field. Rarely there was a central scotoma, and cases of transient total loss of vision had been recorded; as a rule, however, the fixation point was not involved. The scotomata of migraine usually lasted a short time only, but cases of more persistent hemianopia had been reported. Mr. MacMullen also referred to ophthalmoplegic migraine, in which, following an attack of migrainous headache, an ocular palsy occurred. Many of these cases, however, had subsequently been shown to depend upon organic disease, such as tuberculous meningeal exudate or orbital periostitis. The explanation of the ophthalmic symptoms was difficult, as different parts of the visual apparatus were affected in different cases. Bilateral scotomata suggested a change above the chiasma—e.g., in the visual cortex—with gradual spreading. A localisation in the basal ganglia or geniculate bodies had also been suggested. Among the changes in the fundus, either dilatation or constriction of the retinal arteries might be seen, but often there were no abnormal signs. In one case during an attack Higgens found the retinal arteries reduced to mere threads with engorgement of the veins. He agreed with Prof. Bramwell that vasomotor changes appeared to be at the root of the phenomena, and referred to a case in which migraine replaced a previous urticaria; the migraine lasted for 15 years and with its cessation the urticaria recurred though with less intensity. As regards the influence of eyestrain there existed diametrically opposed views. Some writers stated that there was no connexion between the two, and correction of an error of refraction never cured migraine. On the other hand, Hurst maintained that migraine was invariably due to eyestrain. In Mr. MacMullen's experience the common error was a mild degree of hypermetropic astigmatism, often with a slight degree of heterophoria. After correction of the error many cases derived benefit and some, indeed, complete relief. It was only by organised team-work, however, that it was possible to ascertain the various factors that underlay migraine.

Dr. W. TIMME (New York) considered that migraine was merely a symptom of some underlying condition, hence the discrepancy in the views advanced regarding its ætiology. Migraine might result from eyestrain or from other causes, just as a cough or epilepsy might be a symptom of a more profound pathological state. He wished particularly to refer to migraine of pituitary origin. The thyroid gland had been shown to enlarge periodically, so why not the pituitary? If the sella turcica was small, such pituitary enlargement would give rise to migrainous headache; later results of such enlargement might be seen in X ray examination, the sella turcica showing erosion and thus accommodating itself to the enlarged pituitary. A particular type of individual that was predisposed to this form of disorder was the "status

lymphaticus" type. In Dr. Timme's opinion, ophthalmoplegic migraine was essentially pituitary in origin; the enlarged pituitary impinged upon the cavernous sinus and thus involved the oculomotor nerves.

Dr. GORDON HOLMES (London) regarded migraine as a definite clinical entity, although other conditions might give rise to attacks resembling migraine. Visual symptoms were by no means a constant feature of the disorder, and consequently many undoubted cases were not recognised. As regards the vascular hypothesis, physiological evidence lent no support to the presence of a vasomotor mechanism, nor of sympathetic innervation, in the cerebral or meningeal vessels. Also, the onset of the symptoms in migraine were, in his opinion, too rapid to be accounted for by pituitary hyperplasia. It was known that the brain was sometimes subject to localised swellings; further, that in certain instances of decompressive operations performed for gunshot wounds, &c., on migrainous subjects, the migraine had disappeared after the operation. Further observation was necessary on these points. Finally, Dr. Holmes referred to the condition known as migrainous neuralgia.

Dr. R. G. GORDON (Bath) considered that in sufferers from migraine there was an underlying psychological condition that had many analogies to that of epilepsy. There was the same narrow outlook and truculence towards certain things—a compensation for a feeling of inferiority. This fact was fully borne out by psychological investigation. Both conditions probably consisted in an interference with, or paralysis of, higher cortical centres with a consequent release of lower centres. Slight traumata of the occipital cortex had been known to give rise to what might be termed traumatic migraine. There were also rare cases in which migraine was followed by automatism similar to that of epilepsy, and Dr. Gordon described a case in which the patient, following an attack of migraine, behaved in an asocial manner, threatening violence to members of his family, and recovering after an interval with no recollection of what he was doing during the automatic period.

Dr. E. I. SPRIGGS (Ruthin Castle) had classified the various types of headache coming under observation in a general private hospital. Of 1219 cases, 89 had complained of headache, and in 57 this was the sole symptom. Of 100 consecutive cases of headache, all severe, 36 were migrainous in type, but only 12 appeared to be examples of true migraine. Migraine was often associated with definite physical disorder such as gall-stones or obstinate constipation, and upon relief of such a physical state the migraine might disappear. Dr. Spriggs cited cases to illustrate this contention.

Dr. W. A. POTTS (Birmingham) described certain personal experiences with regard to migraine. He considered that many cases of a migrainous type were associated with hypoglycæmia. When such headaches occurred early in the morning, barley-sugar was an excellent remedy.

Dr. G. E. NESBITT (Dublin) considered that suggestion might play a large part in the onset of an attack of migraine; eliciting symptoms from a patient with migraine had been followed by an attack in the investigator. By an effort of concentration during an attack it was sometimes possible to maintain central vision, in spite of the absence of peripheral vision. The two ætiological theories which appealed to him most were those relating to vasomotor disturbance and to the pituitary gland.

Mr. E. W. BREWERTON (London) mentioned a case in which great relief had been obtained by rest, with the application of heat to the occipital region by means of an indiarubber hot-water bottle until the visual symptoms had disappeared. Cold applications were then applied until the headache was relieved.

Dr. C. WORSTER-DROUGHT (London) mentioned that, contrary to Prof. Bramwell's experience, he had met several examples of migraine and epilepsy associated in the same patient; the epilepsy was usually of the petit mal type. He could remember no case of migraine in which some error of refraction had not been present; at the same time, it could not be claimed that correction of the refractive error relieved all cases though some were undoubtedly benefited. He also drew attention to the occurrence of dilatation of the pupil on the affected side during an attack of migraine. This sign suggested sympathetic stimulation and harmonised with the vasomotor hypothesis. Finally, as regards treatment for the prevention of attacks, in his experience the most successful remedy was luminal, gr. ½, taken twice or three times daily. Large doses of calcium had been disappointing in his cases, although a few were relieved. Intravenous injections of calcium had sometimes been successful, while endocrine substances and peptone therapy had given no very encouraging results.

THURSDAY, JULY 22ND.

At the second meeting of the Section Dr. E. MAPOTHER (London) opened a discussion on

Manic-Depressive Psychosis.

The range of the term manic-depressive psychosis, he said, was largely a matter of convention; there was no constant or specific cause for the disorder and no physical modifications recognisable during life or after death. Under the heading manic-depressive psychosis were included cases of functional mental disorder which showed as their predominant feature one or other of a contrasting pair of anomalous types of reaction: (1) melancholia or depressive reaction, and (2) manic reaction. The two syndromes were deviations from the normal in opposite directions and were often seen at different times in the same patient. He then dealt with the relation of manic-depressive psychosis to the psychoneuroses; in a large proportion of both groups of disorder the attack was related to mental stress and led to a morbid protraction of a condition that the circumstances of the stress would be expected to cause. Attacks of melancholia and mania often amounted to decontrol of tendencies which had only just been inhibited when the patient was at his best. Dr. Mapother next described the clinical variations in the melancholic type of reaction—e.g., agitation in the elderly, and stupor in the young. It was customary to distinguish agitated and resistive forms, according to the type of psycho-motor reaction, but such distinctions were very unstable. Morbid fear with insight had been picked out and labelled "anxiety neurosis," but the condition seemed to merge into other types of depression such as agitated melancholia. As regards the pathology of manic-depressive psychosis, it was not known whether the primary change was within or outside the central nervous system, but some evidence was gradually being accumulated that there occurred certain physical changes which appeared primary and essential; among these were histological changes in the cortex cerebri, gonads, and pituitary gland, hæmoclastic crises, anomalous blood-sugar curves, and disorders of gastric secretion. It was to be admitted, however, that such changes were common alike to manic-depressive psychosis and to dementia præcox, the difference being merely one of intensity. Ætiologically, the essential cause seemed to be an innate and inherent susceptibility to the condition, while the actual exciting factor was often mental stress—bereavement, financial worry, illegitimate pregnancy. At various times there had been three attempts to replace heredity as an ætiological factor: (1) Psycho-analytical theory, implying a deviation of development by infantile experiences. (2) Endocrine theory, that the disorder depends upon endocrine disturbance. It was true that manic-depressive psychosis might occur in association with Graves's disease, but this did not make it justifiable to apply the same reasoning to cases in which no endocrine disturbance was present. (3) Theory of toxic absorption from septic foci in teeth, tonsils, or bowel, &c.

Further evidence was necessary before this latter view could be accepted, although it was true that syndromes of a manic-depressive type might result from febrile disturbances such as influenza. If arterio-sclerosis could be excluded and there were no paranoid features present, recovery from the attack was possible even in involutionary forms. The duration of a melancholic phase was seldom less than two or three months, while few cases of mania recovered before two or three weeks. In the diagnosis of manic-depressive psychosis it was necessary to exclude organic diseases such as general paralysis, encephalitis, arterio-sclerosis, thyroid excess, and alcoholism. Finally, Dr. Mapother dealt briefly with the question of treatment. In view of our deficient knowledge of the disorder, treatment was of necessity mainly symptomatic. In acute mania home treatment was inadvisable. In general, psychotherapy for these cases was of little value and might even be harmful, but temporary effects were possible in the early stages by persuasion, encouragement, and firmness. Treatment by means of thyroid, somnifen, and removal of septic foci had not been very encouraging. With regard to hypnotics, Dr. Mapother agreed with Sir Maurice Craig that too serious a view was taken of the danger of habit-formation and too light a regard paid to the damage that might result from restlessness and insomnia.

The PRESIDENT believed that in mild form manic-depressive psychosis was a more common disorder than generally supposed. It was important to recognise it from the standpoint of both prognosis and treatment. He disagreed with Dr. Mapother on the question of anxiety neurosis being regarded as a subdivision of manic-depressive psychosis; he submitted that to distinguish between the two conditions was of fundamental importance as regards prognosis and treatment. Manic-depressive cases were to be protected from suicide and from misjudged kindness in the form of psycho-analysis; they would recover at an uncertain date. In anxiety neurosis the time of recovery depended upon the ease with which the cause of the anxiety could be disclosed; there was no fear of suicide and little fear of analysis.

Dr. T. A. ROSS (Penshurst) joined issue with Dr. Mapother on the question of the identification of psychoneuroses with manic-depressive psychosis. The fundamental difference between the two conditions was one of mental state. By careful attention to this factor differential diagnosis was possible. Among essential differences between the two conditions was that of remorse. No patient suffering from a psychoneurosis ever complained of remorse; if present, the case certainly belonged to the manic-depressive group. The psychoneurotic always blamed something or somebody else for his disorder—never himself; further, even when apparently well, he was never really *quite* well—he was easily tired or upset. On the other hand, the manic-depressive complains of no symptoms when free from his malady.

Dr. R. D. GILLESPIE (London) considered that morbid dissatisfaction with oneself was the keynote of manic-depressive psychosis. There was also an essential difference between the latter and psycho-neuroses. He reminded Dr. Mapother that the cortical and gonadal changes to which he had referred had not been fully confirmed. Under the influence of Kraepelin, there had been an undue tendency to limit the conception of manic-depressive psychosis; possibly fresh divisions could be distinguished, such as reactive depression, psycho-neurotic depression.

Dr. R. H. COLE (London) believed that everyone was liable to manic-depressive reactions of a mild type and that manic-depressive psychosis was merely an exaggeration of this state. It was doubtful, however, if sufficient evidence existed for saying that a psychoneurosis could become a definite psychosis.

FRIDAY, JULY 23RD.

At the third session of the Section Dr. GORDON HOLMES opened a discussion on

Pituitary Disorders.

In recent years, he said, the physiology of the pituitary gland had become a vexed question. It might be said, however, that in general the pituitary was assumed to influence growth, metabolism, urinary secretion, and sexual function. The clinical symptoms of pituitary disease were usually divided into those due to over-activity of a part of the gland and those resulting from loss or deficiency of some of its secretions. This classification was probably the most useful that could be proposed in the present state of knowledge. The best known and most common form of pathological overgrowth was acromegaly. Dr. Holmes then described the clinical features of this condition, illustrating his remarks with lantern slides of cases. A little-known sign was enlargement of the intestines, especially of the colon. The usual lesion responsible for acromegaly was an eosinophil adenoma of the anterior lobe. Dr. Holmes dealt with the various clinical types of pituitary deficiency such as the Fröhlich and Lorain type of hypopituitarism. It should be remembered, he said, that adiposity might be due to atrophy of the supra-renal cortex in the absence of any pituitary disease. Glycosuria often occurred in acromegaly and could be controlled by insulin injections, just as in diabetes. On the other hand, in hypopituitary patients there was often a marked increase in carbohydrate tolerance, amounts larger than 150 g. of glucose being necessary to produce glycosuria. The investigation of the blood-sugar curve on the administration of glucose was a valuable diagnostic sign. In pituitary deficiency the curve usually rose more slowly and remained raised for a longer period than normally. The basal metabolic rate was also lowered in hypopituitary states and raised in acromegaly and giantism, but this was apparently not a constant rule. Polyuria and diabetes insipidus had also been attributed to disease of the posterior lobe of the hypophysis. Recent observations, however, have thrown doubt upon this explanation of polyuria, and many of them pointed strongly to the symptom being directly due to a lesion of the hypothalamus. The temporary relief of diabetes insipidus by pituitrin, however, suggested that the pituitary gland might play a part in its production. In cases of pituitary tumour both the systolic and diastolic blood pressure were usually lower than normal. Dr. Holmes next discussed pressure symptoms resulting from an enlarged pituitary, and showed lantern slides of different types of visual field disturbance in cases of tumour of the organ. Among other pressure symptoms, diplopia, strabismus, ptosis, and trigeminal pain might occur. Papilloedema was rarely seen in simple pituitary tumour, but it occurred frequently with extra-sellar growths. Erdheim had first suggested that disturbance of the hypothalamus was the cause of many of the symptoms attributed to the pituitary, and Aschner and others had provided further experimental evidence in favour of this thesis. It seemed to be definitely established that polyuria and temporary glycosuria could be produced by lesions of the tuber cinereum, and some experimenters claimed that adiposity and genital atrophy might result from injury of the base of the brain with the pituitary gland intact. Diabetes and glycosuria had been found associated with lesions limited to the tuber cinereum; obesity had also been observed in disease of these parts. The major clinical manifestations of pituitary disease were not common, but it was probable that certain minor disturbances of health, which often escaped notice, were the result of pituitary disturbance; unnatural obesity, stunted growth, and sexual weakness, for instance, might be of this origin, though accompanied by no other evidence of pituitary disease. As regards treatment in hypopituitarism, the most rational procedure

seemed to be the administration of the active substance of the gland. It appeared, however, that intravenous or intraperitoneal injections gave no constant results, and the efficacy of oral administration was often very doubtful. In some cases of the adipose type, thyroid in moderate or large doses led to some improvement. When more urgent symptoms of compression by a pituitary tumour of neighbouring structures appeared, there were only two effective modes of treatment—surgery and radiology.

Mr. NORMAN DOTT (Edinburgh) said that tumours in the pituitary region might originate either above or below the diaphragma sellæ. X ray examination often indicated the differential diagnosis. In supra-sellar tumours there was erosion of the clinoid processes and a flattening of the sella turcica, while in sub-sellar tumours the sella turcica was enlarged and might be ballooned. The differential diagnosis was important from the standpoint of surgical treatment, the method of approach being different in each case. Pituitary adenomata were very rare before the age of 15, and comparatively rare before 25, while supra-sellar cysts were commoner in young subjects. As regards the surgical treatment of pituitary disorders, it was not justifiable to operate for purely glandular symptoms. Severe headache and progressive failure of vision, however, should lead to a serious consideration of the question of operation, while operation should be urged when the visual fields were progressively disappearing. In most cases total removal of the tumour was impossible and scarcely to be contemplated. Subsequent enlargement had to be reckoned with. The aim was to try to give the tumour room to grow downwards by removal of the floor of the sella turcica. The trans-sphenoidal method of approach traversed a potentially septic field, but the tumour itself constituted a barrier between the subarachnoid space and the sphenoidal sinus. The trans-sphenoidal route was the method of choice for pituitary adenomata. Supra-sellar tumours were often incapable of complete removal. Good access could be got from above; therefore the trans-frontal method was most advantageous, the tumour being approached from the right side. In cases of doubt, trans-frontal exploration was indicated.

Mr. M. L. HINE (London), from the ophthalmological standpoint, advocated the use of white test objects for taking visual fields in cases of pituitary disorders.

Dr. W. J. ADIE (London) amplified the relationship of the pituitary body to the vegetative centres in the hypothalamus region. Their close anatomical relationship suggested an equally close physiological connexion. He submitted that these vegetative centres and the pituitary body formed a physiological mechanism which might be termed the pituitary-'tween-brain system. The same symptoms and syndromes might arise from disease strictly confined either to the glandular or the nervous part of this system. It had been shown that minute lesions confined to the 'tween-brain and sparing the pituitary could cause glycosuria and polyuria and be followed by obesity and genital atrophy. Dr. Adie illustrated his remarks by reference to certain cases of encephalitis lethargica.

Dr. H. GARDINER-HILL (London) described cases of obesity and growth disturbances in children in which there was no evidence of pituitary tumour. In over 100 children with clinical features suggestive of pituitary disease and in whom carbohydrate metabolism was altered, he had found evidence of pituitary or supra-sellar tumour in only about 10 per cent., and these were cases of the true Fröhlich type. There was also a high proportion of cases in which obesity and overgrowth was combined with early development again without evidence of pituitary tumour. In these cases the obesity was often extreme at the age of 14 or 15; its onset was accompanied by marked acceleration of growth which continued until puberty when it ceased.

Mr. G. JEFFERSON (Manchester) dealt further with the question of surgical treatment. The supra-pituitary tumour or cyst was accessible only by the trans-frontal method of approach. As regards the true pituitary tumour, there was still a difference of opinion about the best method of attack; Mr. Jefferson favoured the trans-sphenoidal route. Entire removal of such a tumour could scarcely be hoped for; the operation was largely one of local decompression—to relieve visual defects or to prevent blindness. He then described in detail the trans-sphenoidal operation.

Dr. ELIZABETH EAVES (Sheffield) gave particulars of three cases of dyspituitarism examined post mortem. In the first, the pituitary gland was small and considerably fibrosed; in the second—a case of infantilism with polyuria—the whole brain showed hypertrophic sclerosis and the pituitary was compressed by a dense capsule. The third case was one of encephalitis lethargica in which the anterior pituitary lobe was fibrosed. Dr. Eaves showed sections of the pituitary glands of these cases and also described certain experiments she had carried out showing the effect of insulin upon the pituitary body.

Dr. C. G. IMRIE (Sheffield) gave details of a case of polyuria following encephalitis lethargica in which the symptom was controlled by pituitrin injections. The pituitrin was not necessarily specific, as J. S. B. Haldane had shown that pituitrin would control the polyuria following the taking of large quantities of water. When the percentage of blood-sugar was low the effect of pituitrin was to cause a rise of blood-sugar, rendering the curve more normal; indeed, ½ c.cm. of pituitrin had a greater effect on the blood-sugar curve than 50 g. of glucose.

Reviews and Notices of Books.

PSYCHOLOGICAL MEDICINE.

A Manual on Mental Diseases for Practitioners and Students. Fourth edition. By Sir MAURICE CRAIG, C.B.E., M.D. Camb., F.R.C.P. Lond., late Physician for and Lecturer in Psychological Medicine, Guy's Hospital; and THOMAS BEATON, O.B.E., M.D., M.R.C.P. Lond., Senior Assistant Physician and Physician to Out-patients, Bethlem Royal Hospital. London: J. and A. Churchill. 1926. With 25 plates, some in colour. Pp. 437. 21*s*.

IT has been a pleasant and stimulating task to review the fourth edition of this well-known text-book. This is the first edition to appear under the joint authorship of Sir Maurice Craig and Dr. Beaton, and it may be confidently predicted that it will not be the last.

The book is divided into nine sections containing 26 chapters. Besides the usual subjects dealt with in a work of this sort there is a section on Mental Deficiency, and a final section on Miscellaneous Subjects contains chapters on malingering, case-taking, the legal relationships of insanity, treatment, and laboratory work. The last is a welcome and much needed addition to works on psychiatry, and might be extended in future editions. It contains short accounts of the more important laboratory tests which are useful to the practising clinician in the investigation of his cases It calls attention to the necessity for blood counts, blood-sugar estimations, and detailed examination of the urine and cerebro-spinal fluid, and it points out how much information can be gained from estimating basal metabolism and protein sensitivity. Such investigations are of great value in clearing up the cause of an obscure confusional state, and it is right to insist on their importance.

The sections on the Psychoses are admirable. The classification is clear and is well justified throughout. Ideas of classification are at present somewhat nebulous, and that adopted, which owes something to the influence of Kraepelin and Bleuler, may not agree with the views of some authorities, but it is certainly practical. Of special interest is the chapter

on adolescent psychoses, dementia præcox, and dementia paranoides. These conditions are described in a masterly manner, and this chapter, more than any other, gives the authors a chance of aptly presenting the biological views of mental disorder which they hold. The known pathology of these conditions is fully discussed and illustrated by many excellent plates—amongst which, however, it is surely a mistake to include one which shows sections cut from the brain of a patient with dementia præcox whose death was caused by pneumonia, since no reliable conclusions can be drawn when an acute infective condition obscures the picture.

That part of the book devoted to general paralysis and other syphilitic infections of the nervous system is also well illustrated. The authors have a cautious attitude towards the malarial treatment of paresis, and do not go into details about the way in which it is carried out, which is perhaps wise, for the treatment requires most careful handling; what would be useful to the practitioner would be a short paragraph giving the contra-indications to the use of malaria in treating a paretic; age, for example, is a most important factor, while remission is most likely to occur in the early stages, as Dr. C. P. Symonds points out in THE LANCET Extra Number on "Early Mental Disease."

Alcoholic mental states are graphically described and the lines of treatment well presented, but little or nothing is said about the psychological factors which underlie drinking. These have been carefully studied by a number of observers and deserve some mention. The student nowadays is not content to read that a case of delirium tremens suffers from zoological hallucinations. He wants some explanation as to why these hallucinations are nearly always of "animals and insects that crawl about his bed," and he wants also some explanation of the mechanisms which determine the habit of drinking to excess. These remarks naturally introduce the subject of psycho-analysis and the modern concept of the unconscious mind. The authors describe psycho-analysis in a brief paragraph, which concludes with the statement that "it is very doubtful whether psycho-analysis provides either an explanation or a remedy for all psychological phenomena." The sentence summarises the attitude of the authors to psycho-analysis. The section on Psychology at the commencement of the volume is concise, and is no mere reproduction of other writers. It is well and forcefully written and can be understood with readiness by the student. The same remarks apply to the chapter on symptomatology, but in both more attention might have been paid to modern psychopathology. Practitioners of the analytic schools will quarrel with the view that the procedure consists of explaining the theory of analysis to the patient, and Freudians are not likely to accept as a fair presentation of their views the statement, on p. 263, that anxiety states result from the *cessation* of coitus interruptus.

The psychoneuroses and neuroses are very ably dealt with, though here again the psycho-pathology of the conditions is not very fully explained. But what is important is the fact that Sir Maurice Craig and Dr. Beaton evidently regard these minor mental maladies as in no way sharply divided from the graver disorders of mind. There has been a tendency to divorce these common mental states from the severer grades of mental illness. The term neurasthenia is discarded; the authors consider that most so-called neurasthenics are constitutional depressives with hypochondriacal developments, the rest belonging to the anxiety or obsessional groups.

Much has been done in this work to draw together psychiatry and general medicine. The biological meaning of symptoms in states of insanity, of whatever degree of severity, is strongly insisted upon. The reader feels that every page is the result of clinical experience, of long and intimate contact with patients. The book is not an arm-chair product, but is alive with practical experience and the original presentation of old problems.

AURICULAR FIBRILLATION.

By J. G. EMANUEL, B.Sc., M.D., F.R.C.P., Physician to the Queen's Hospital, Birmingham. Birmingham: Cornish Brothers, Ltd. 1926. Pp. 31.

THIS small volume contains the two Ingleby lectures delivered at the University of Birmingham in 1925. The text is well illustrated by electrocardiograms and charts, and the clinical aspect of the subject is thoughtfully considered. In such limited compass it is not possible to deal comprehensively with auricular fibrillation, and the author has accordingly confined his attention to certain features illustrated by clinical cases under his own care. Special stress is laid on the part played by toxins, not merely in causing fibrillation, but also in producing an impairment of conductivity in the Purkinje system which results in a relative bradycardia. The effect of digitalis on fibrillation and normal rhythm respectively is well illustrated by a case of paroxysmal auricular fibrillation. During the paroxysms the ventricular rate was in the neighbourhood of 90 per minute, the patient being well under the influence of digitalis, but on reversion to normal rhythm it rose to 120 or 140 per minute, to return again to 90 as soon as another paroxysm supervened. Dr. Emanuel suggests that the potent action of digitalis in fibrillation is attributable to the abnormal nature of the impulse, and he expresses the further opinion that the ventricle will contract with the maximum efficiency only in response to an impulse arising in the sino-auricular node. This is a somewhat daring hypothesis, for the cardiac impulse is generally held to be similar in nature to the nervous impulse which is known to obey the "all or none" law. In another case the site of action of digitalis was studied by repeated subcutaneous injections of atropine. At first atropine produced a quickening in the ventricular rate of about 50 beats per minute, but when the patient was fully digitalised the acceleration only amounted to 10 to 15 beats per minute, suggesting that the early digitalis effect was due to vagal stimulation, while the later effect depended on a direct action on the cardiac muscle. For rapid digitalisation the author employs Nativelle's granules, as many as nine of the larger granules (1/240 gr.), each of which he considers is equivalent to 30 minims of the tincture, being given in 24 hours. A final section deals with quinidine treatment, and stress is laid on the importance of giving the drug at two-hourly intervals.

The volume will be read with interest by those who follow the more recent advances in cardiology.

DISEASES OF THE SKIN.

Sixth edition. By RICHARD L. SUTTON, M.D., LL.D., F.R.S. Edin., Professor of Diseases of the Skin, University of Kansas School of Medicine. London: Henry Kimpton. 1926. Pp. 1303. 52s. 6d.

AN ideal text-book on skin diseases can be compiled only by a teacher of experience, energy, and a certain leisure. The text should be as free from hypothesis and theoretical argument as is compatible with the intricacy of the subject. It must be profusely and accurately illustrated by photographs and coloured sketches of the actual lesions, of which, if possible, more than one type should be represented and amplified by at least two microphotographs—a low and a high power magnification—of typical sections. It must be up to date and provide a bibliography which should be cosmopolitan and not national only. Finally, the index should be complete.

The majority of these desiderata are fully met in the latest edition of Prof. Sutton's admirable work, which first appeared in 1916. There are 1158 illustrations in 1268 pages of text—almost one to the page. The value of these in enlivening the text, reviving the visual memory of similar cases, and for purposes of comparison can scarcely be exaggerated. The excellent microphotographs are not spoiled by too

much explanatory description. In most cases one or two lines suffice and succeed in conveying the essential features of the histology. In the very complete chapter on syphilis (95 pages) there are five illustrations of the genital and no less than 12 of extragenital chancres. This chapter alone, with its colossal bibliography of five and a half pages in small print, renders the whole volume noteworthy. The writer's industry and acquaintance with the literature are exemplified by a brief running commentary to many of his references—e.g., "an important and valuable contribution on syphilis of the nervous system," "exhaustive original studies on absorption of mercurial inunctions." This original treatment of the bibliography will save intending authors a great deal of unnecessary reading and reference. The method of classification is not altogether satisfactory, and it is difficult to understand why epidermolysis bullosa, which is a congenital affection, is placed in the "inflammatory group," while the tuberculous and syphilitic diseases of the skin find a place among the "new growths." In this section, too, there is a grave omission. English dermatologists are in agreement on the great importance of Schaumann's work on the type of "tubercular sarcoid," to which he has given the name of "benign lymphogranuloma." The first of his papers was published in 1914, and he read a much appreciated paper on the whole subject before the Dermatological Section of the Royal Society of Medicine in December, 1924. But no reference can be found to it in this book. His geographical situation has afforded Prof. Sutton extensive experience of such relatively rare conditions as blastomycosis, espundia, yaws, sporotrichosis, and mycetoma, all of which are illustrated by actual photographs. The chapter on leprosy, too, could only have been compiled by a writer with exceptional facilities, while those on tuberculosis and the tuberculides will repay a detailed study.

The subject of treatment is briefly summarised, and the author has been careful to avoid the error of submitting a large and confused catalogue of alleged remedies from which the inexperienced practitioner is left to make a selection. He has also skilfully avoided the equally undesirable fault of dogmatism. Regarded from the point of view of a work of reference this text-book is fully the equal of any in the English language, and probably more complete than any in the matter of illustrations. It should find a place on the shelves of every serious student of dermatology.

PRACTICE OF UROLOGY.

By HUGH H. YOUNG and DAVID M. DAVIS. With the collaboration of FRANKLIN P. JOHNSON. In two volumes. London: W. B. Saunders Company, Ltd. 1926. Pp. 1433. £5 5*s*.

THIS large treatise is based on a study of 12,500 urological cases and the work has been well done, the peculiar value of the book lying in the personal note that permeates it throughout. Mature judgment resulting from an immense individual experience is handed out to the reader and no mere compilation of the literature. The preparation of the book must have necessitated the reading through of thousands of case-histories, the writing of innumerable letters of inquiry, and countless clinical examinations of patients long since discharged from the clinic. This method of writing, however, leads to certain omissions. For instance, less attention is devoted to suprapubic prostatectomy than its generally recognised importance deserves. There is no account of exposure of the lower ends of the ureters by a median subumbilical extraperitoneal route. But it is open to question whether these omissions are a drawback. It is of more advantage to listen to what Young has to say about perineal prostatectomy than to read his account of the suprapubic operation, which is only done in his clinic for some special reason, as, for instance, when there is an accompanying ankylosis of the hip-joint or when a perineal operation has been done already, or when, in attempting it, a laceration of the rectum or urethra has occurred. Young has performed 1049 perineal prostatectomies with a mortality of 3·4 per cent.—a truly wonderful achievement. The mortality in 108 suprapubic operations was 8·2 per cent. With regard to radical extirpation of the malignant prostate, in the later cases it has been possible to do this without injury to the external sphincter. The results have proved to be ultimately somewhat better than those following radical operation for carcinoma of the breast.

There is so much information to be gleaned from these two volumes that it is difficult to select sections for special mention or commendation. Noteworthy are the accounts of the radical cure of incontinence, the removal of bladder diverticula by suction, and the surgical treatment of tuberculous epididymitis. When there is a stone in the ureter the author does not counsel a long expectant policy, advice which would seem to be sound from all points of view. There were curiously few plastic operations for hydronephrosis performed considering the large number of cases under review. Of five patients treated in this way, only four could be followed up, and in three of them cure resulted. The description of the physiology of urination, of the phenolsulphonephthalein test of renal function, and of the decompression apparatus used in the clinic make interesting reading.

NOTABLE BRITISH TRIALS.

Trial of Katharine Nairn. Edited by WILLIAM ROUGHEAD. London and Edinburgh: W. Hodge and Co. 1926. Pp. 257. 10*s*. 6*d*.

THE latest volume in the series of "Notable British Trials" deals with the famous proceedings against Katharine Nairn on the charge of murdering her husband, Thomas Ogilvy, in 1765. Mr. William Roughead, well known as a student and expositor of the criminal annals of Scotland, edits the report, provides an admirable introduction, and prints certain fresh material which his research has discovered. The case is of strong medico-legal interest, an early instance of arsenical poisoning. The charge would nowadays be proved or disproved beyond doubt by expert scientific evidence. But, though the dead man's symptoms before death and the outward appearance of his body after death were described by witnesses, there was no post-mortem examination. Doctors gave evidence, but they mostly disclaimed experience of deaths due to poisoning; the chief expert testimony was that of an Edinburgh surgeon, who had the advantage of having once attended a woman who was believed to have died of arsenic. Mr. Roughead has much enhanced the value of his volume by including a note by Prof. Harvey Littlejohn upon the medico-legal aspects of the trial wherein the medical symptoms are summarised and the inferences to be drawn therefrom are stated.

Katharine Nairn, daughter of a Perthshire baronet, married Thomas Ogilvy in January, 1765, when she was a girl of 19. He was twice her age, and apparently in indifferent health. His brother, Lieut. Patrick Ogilvy, invalided home from abroad, joined the household, and it was thought that he and his sister-in-law grew overfond of one another. The brothers quarrelled and Patrick left the house. At the end of May he bought a small phial of laudanum and about an ounce of arsenic, ostensibly to destroy some dogs. On June 5th a messenger from Patrick brought a packet to Katharine. Next morning, Thomas the husband, kept his bed, having been unwell in the night. Katharine was seen to make him a bowl of tea and to add sugar and milk. This she took upstairs to him. Soon afterwards he was taken very ill and complained of having been poisoned. Presently he rose, dressed himself and went out, but soon he was back in his kitchen where he was violently sick. At midnight, before the arrival of the doctor who had been summoned, he died. Five days later three doctors were assembled for a post-mortem

examination. The body was not opened, however, it being thought that its state of putrefaction was such that no signs of the cause of death would be discovered. Katharine and Patrick were jointly indicted not only for murder but also for incest. They were found guilty on both charges. Patrick was hanged, protesting his innocence; but Katharine obtained a temporary respite by saying she was pregnant. She was thereupon examined, not, as under the English custom, by a jury of matrons, but by five midwives, who a few months later confirmed her statement. On Feb. 26th, 1766, her child was born; on March 17th, when the judges reassembled in the Tolbooth to pronounce her doom, it was found that she had escaped from prison. She fled to France, where she met with further romantic adventures, finally ending her days in a convent.

Were the prisoners rightly convicted? The evidence of incest was far from overwhelming; the murder charge rested mainly on the behaviour of the parties and on Patrick's purchase of arsenic. This purchase he had not to explain in those more merciful days when prisoners had not the doubtful privilege of going into the witness-box. Katharine was of decent upbringing and had married her husband, against her family's wishes, apparently for love. Why should she so soon have turned against him? If she and Patrick were lovers, they could not have married even when Thomas was put out of the way. It was a strange case with strange witnesses and strange evidence. Readers of the story so well put before us by Mr. Roughead will be able to form their own conclusions.

MODERN METHODS OF AMPUTATION.

By THOMAS G. ORR, A.B., M.D., F.A.C.S., Professor of Surgery, University of Kansas. London: Henry Kimpton. 1926. With 104 figures. Pp. 117. 16s.

IN a concise form Prof. Orr gives directions, illustrated by clear figures, of the more usual amputations. There is little discussion in his book of the pros and cons of the various procedures, and the details given are somewhat scanty. For instance, in describing Syme's amputation the author does not mention some of the mistakes into which the careless or inexperienced operator may fall. These mistakes may seriously detract from the value of the stump which, in favourable circumstances, should be the best of all for locomotive purposes. A little more precision as to the minimum length of bone which can be utilised in a thigh stump would have been useful to an operator not familiar with the possibilities of practical prosthetics. In the chapter on cineplastic amputations, Prof. Orr says that "very little of such surgery has been done in America or England." In this country a considerable number of such operations were performed during and after the war, but the practical results were so discouraging that the method may now be regarded as abandoned. In Germany the enthusiastic Sauerbruch still claims success; the silence of other German surgeons on the subject is significant. A chapter on artificial limbs concludes the work, but it was evidently not possible to do this subject full justice in the limited space devoted to it. The paper, type, and illustrations are all admirable, and within its limitations this book should be useful.

JOURNALS.

JOURNAL OF INDUSTRIAL HYGIENE. July, 1926.—A definite and unique condition resulting from inhaling dust arising while mining iron ore in Cumberland is described from the clinical viewpoint by A. J. Cronin. Certain tissue changes were found diffused through both lungs, associated with a clogged-up feeling and dyspnœa on exertion. Chest expansion was limited; massive fibrosis and pleural involvement were absent. No other evidence of pneumonoconiosis was present.—The introduction of lead compounds nto rubber for toughening purposes has for long been a source of plumbism. C. A. Klein tells how the risk can be avoided by using special sheets containing 80 parts of lead to 20 of wax or rubber instead of a raw lead compound. These sheets are made for the trade in bulk under special precautions.—A careful comparative test of different instruments for determining air dustiness is described by S. H. Katz, G. W. Smith, and W. M. Myers. Equations are given for converting dustiness in terms of one instrument into terms of another. The article is highly technical and mathematical.—A research into the effect of turbulent air motion and of humidity on the stability of dust, fume, and smoke clouds is discussed by P. Drinker, R. M. Thomson, and J. L. Finn. Neither air motion nor humidity exerted any appreciable effect on silica dust; but both aided in clearing zinc oxide fumes, probably due to facilitating aggregation of particles.

New Inventions.

AN IMPROVED VULSELLUM FORCEPS.

I HAVE had made a vulsellum forceps on the lines of a ring forceps. My improved instrument does not tear out because it folds in a portion of tissue in

the ring and the teeth do not catch when being inserted into the cervix, and the instrument does not tear out lacerations. Scarifications are thus avoided.

The manufacturers are Messrs. C. F. Thackray, of Park-street, Leeds.

Paisley. H. C. DONALD, M.B., F.R.C.S. Edin.

HÆMOSTATIC FORCEPS.

I HAVE devised a hæmostatic forceps (see figure) primarily for operations on the skull but also for all cases where a long skin incision is necessary. There are always numerous small vessels which can be occluded satisfactorily in the process of suturing the skin wound at

½ Sc

the conclusion of the operation, but which if not ligated or controlled during the operative procedures cause a great deal of difficulty from flooding of the operative area. Ligation of these small vessels always means loss of valuable time, and in many cases every second is of value.

The chief advantages about these forceps are: ease of application; rapidity of application; they can be used on wound edges in place of towel-holding forceps, thus carrying out the double duty of (*a*) towel-holding forceps, (*b*) hæmostatic forceps (practically no Spencer Wells being required); the large area of the blades controls an extensive amount of cut skin edge (requiring fewer pairs); they can be quite well used for towel clips in the ordinary way in addition; and there are no screw-joints to rust or get out of order.

Messrs. Down Bros., Ltd., 21, St. Thomas's-street, London, S.E. 1, are the manufacturers.

Plymouth. GEO. L. PRESTON, F.R.C.S. Edin.

THE LANCET.

LONDON: SATURDAY, AUGUST 21, 1926.

ENTERIC INFECTIONS IN MENTAL HOSPITALS.

THE publication of the Report of the Royal Commission on Lunacy has focused public attention on the difficulties in the administration of mental hospitals, of which none is greater than the prevention and treatment of enteric infections. These diseases have been largely eradicated by modern public health measures both from the population at large and from prisons and Poor-law institutions, and during the war preventive inoculation minimised their incidence amongst the combatants in spite of the necessarily bad hygienic conditions of stationary warfare. In mental hospitals, however, enteric infections have retained an undesirable prevalence, although recent research is at last making it possible to control or even to eradicate them. Enteric infections, then common in the general population, appeared in public asylums from their very inception. At Wakefield, built for 150 patients, a case of "bloody flux" arose within a week of the opening of the institution in 1818. Ten years later among the 256 patients the cases of dysentery became so numerous as to make it necessary to disperse the patients belonging to one of the wards into different parts of the house in order to turn that ward into an infirmary, where the dysenteric patients were kept distinct from the rest. Notwithstanding all that was done, fresh cases daily occurred, until, in the words of the medical director, a change took place in the weather, accompanied with the autumnal gales of wind. But meanwhile 14 patients out of 55 attacked in the course of the year died of the disease. In his report for the year 1831, referring to the alleged prevalence of dysentery in the asylum, the medical director states:

> "During a very hot summer and an unhealthy season subsequent to it, while the disease was both prevalent and fatal in the neighbouring towns and villages, my own and only child, a healthy boy of 3 years old, who fell a victim to it, was the only serious case in the institution. Lately a few cases have occurred, and four emaciated patients, two of whom were already sinking when attacked, have died from it. One case of dysentery now exists in the house; with this exception the inmates in general are in a very healthy state."

Nevertheless, as the years rolled on these diseases came to be regarded as a necessary infliction, and, under the general term "colitis," were thought to be one of the consequences of mental disease. It is not surprising, therefore, that MOTT and DURHAM, in their classical report published at the end of last century, whilst they stated definitely that "colitis" was in reality bacillary dysentery, nevertheless, on the information at their disposal, remarked that the disease rarely or never attacked the staffs of asylums. This valuable report did not obtain ready acceptance, since BEVAN LEWIS, as lately as 1909, lauded the systematic exhibition of "white mixture," a prophylactic treatment adopted by him in 1903.

For many years now systematic clinico-bacteriological research has been carried out at various mental hospitals, including Wakefield, and reported to the Board of Control. From this it appears that of the motile and non-motile types of pathogenic bacillary infection the former usually are the *B. typhosus* and the *B. paratyphosus* B inhabiting both intestines and biliary system, the latter several allied strains of *B. flexner* inhabiting the large intestine chiefly. Both motile and non-motile infections may occur at different times in the same individual, and when pathogenic organisms are prevalent certain lowly- or non-pathogenic organisms—e.g., *B. morgan* No. 1—are commonly also found. There is considerable evidence in favour of individual susceptibility to these infections. *B. typhosus* and *B. paratyphosus* B, when they occur, are as a rule readily controlled by systematic clinico-bacteriological methods, since only actual cases or inoculated persons provide a Widal reaction, and systematic blood examination and segregation of all cases of illness will ensure isolation of the infected patients, the diagnosis being confirmed by bacteriological study of the excreta. The only difficulty likely to be encountered is the possible existence of a non-agglutinating carrier. Such are, however, fortunately very rare, though their occasional existence seems to be definitely proved. Whether removal of the gall-bladder will permanently cure these cases remains yet uncertain. It must not be forgotten that at any time a case of typhoid or para-B may be introduced from outside by either staff or visitors, and this is a probable cause of sporadic cases. The Flexner bacillus is a much commoner infection, due to the fact that even an isolated case of clinical dysentery is invariably accompanied by a number of positively agglutinating cases, which may be the result of infection or merely of ingestion. Extensive measures of isolation are therefore required whenever active cases are discovered, since delay for the repeated systematic examination of fæces is likely to result in the appearance of further actual cases or even of a definite epidemic. It is well known that wholesale transfers of patients and the opening of new asylums are apt to be followed by epidemics of enteric infection. This result is due to the fact that the relative immunity to its own strain acquired by an asylum population does not extend to any foreign strain introduced. Amongst batches of untested transfers, however otherwise carefully these may have been selected, a number of positively agglutinating (non-inoculated) cases may be found, and some at any rate of these, unless isolated, will infect the strange population into which they are introduced. A certain percentage of new admissions, and also—which may seem strange—a certain percentage of (non-inoculated) probationer nurses may be found to be positively agglutinating. The former require isolation and investigation and the services of the latter after confirmation of the test should be dispensed with. Finally, it is of the greatest importance that a post-mortem investigation, including the systematic examination of and the taking of cultures from the intestine, should be performed in the case of every death occurring in a mental hospital.

Inoculation with autogenous vaccines in selected cases of dysentery is a valuable means of treatment, and it has certainly done no harm when pressed in confirmed cases of para-B and typhoid. In the former cure has sometimes followed the pushing of inoculation to the danger point. The question of preventive inoculation is important; an interesting illustration of its application is given in the article by Dr. C. A. HOGG and Dr. O. LATHAM, which appears in this issue of THE LANCET. If a population is known to be free from enteric infection, inoculation against infection of a certain kind is undoubtedly highly protective for a fairly long period. On the other hand, unless entire freedom from the particular

infection exists, its presence becomes difficult to determine owing to the loss of the agglutination test; bacteriological examination of the fæces alone is a tedious and not very certain business. Prevention by inoculation is good, but detection and isolation of infected cases followed often by cure is better. Preventive inoculation, in fact, is a valuable weapon in the hands of expert clinico-bacteriological departments which understand its limitations and the disability it produces; but inoculation is a dangerous tool if employed as a royal road to the prevention of any disease in the absence of a clinico-bacteriological department. It would appear that, whilst modern sanitary measures will continue to improve the general health of mental hospitals, an equivalent permanent decrease in the prevalence of enteric infections is unlikely until inter-hospital transference of patients is reduced to a minimum and complete separation of healthy from potentially dangerous cases is rendered possible by the provision in every mental hospital of an expert bacteriological department. Until this is done certain dangerous enteric infections will necessarily remain latent and unrecognised, liable at any time to become epidemic in their incidence. The New South Wales mental hospitals are fortunate in that so far, owing to their isolation and relative youth, they have only had to meet and control typhoid fever, one of the more definite and best-known varieties of enteric infection. The rather alarming quotation with which the article by Drs. HOGG and LATHAM commences need not be taken too seriously. Dysentery, para-B, and typhoid can at any time become dangerously epidemic in mental hospitals in the absence of expert clinico-bacteriological methods of prevention and treatment, but, granted similar conditions, so can any infectious disease known to medicine.

THE METROPOLITAN ASYLUMS BOARD.

THE appearance in the month of August of the report of the Metropolitan Asylums Board[1] gives recurrent occasion for an attempt to visualise the work of this body which is remarkable as an instance of evolution. Established in 1867 to provide asylum, in the old sense of sanctuary or retreat, for the sick, insane, and infirm from all parts of the metropolis, the burthen of the Board has increased year by year from the imposition of new duties, while the old have never been removed. On the side of mental affliction, the large group of harmless Poor-law imbeciles was its first care, to which has been added, as time has gone on, the oversight of feeble-minded (though uncertified) Poor-law children, the charge of sane epileptics, in 1917 the care of cases certified under the Mental Deficiency Act and, quite recently, the responsibility for aged persons requiring institutional treatment owing to mental infirmity. On the side of physical affliction, the original group of four infectious diseases, at first limited to Poor-law cases, was extended, owing to the removal by Parliament in 1883 of the penalty of civil disability, to all cases whatever their status, and further by the continual addition of fresh diseases made notifiable to the health authority, of which the most recent are ophthalmia neonatorum and zymotic enteritis. The Board is now the central metropolitan authority for dealing with sick and convalescent children and with those who suffer from ophthalmia, ringworm, and interstitial keratitis. It trains boys for service on the sea, maintains a far-reaching ambulance service, provides casual wards for destitute wayfarers and foundlings, with a hostel to assist men to regain employment, and implements a scheme for dealing with the homeless poor at night.

The Board to which this vast and almost bewildering task is allotted is composed of 73 members, 55 of whom are elected by metropolitan boards of guardians and the remainder nominated by the Ministry of Health. Three of its members at present belong to the medical profession—namely, Dr. ETHEL BENTHAM, Sir D'ARCY POWER, and Sir WILLIAM SMITH, the two first being nominees of the Ministry. For the third time in six years the Board has had to consider its own abdication, for, in common with other guardians of the poor, it received in January last the circular letter from the Minister of Health proposing (in the case of London) to transfer all the work of the Board to the London County Council. As on previous occasions, the Board stoutly asserts the principle of independent existence, contending that the Council would find it impracticable to undertake, in addition to its present duties, the oversight of 145 institutions—accommodating 82,500 persons situated over an area extending from Lowestoft to Littlehampton and from Margate to Wokingham—without surrendering the close contact between work to be done and the public for whom it is done, which has been the policy of the Board. The report emphasises once again the importance of a form of management which invokes the voluntary services of a large number of public representatives to supervise the various hospitals and institutions. It has fears for the effect of restricting supervision to visitors appointed locally without effective powers or adequate representation, and still more the effect of a system of purely official management. In urging this view the Board will, we believe, have the cordial support of a large body of thoughtful persons.

During the year under review, while the work of the Board has increased in many directions, a small number of innovations deserve special mention. For 15 years past puerperal fever has been admissible to M.A.B. hospitals, and a year ago, acting on a suggestion in Dame JANET CAMPBELL'S report, it was decided to concentrate these patients in a smaller number of hospitals where they might have the benefit of skilled nursing and specialist care. The Eastern, North-Western, and South-Western Hospitals were selected for this purpose, Mr. J. M. WYATT, assistant obstetric surgeon to St. Thomas's Hospital, being appointed obstetric consultant, and the 50 beds allotted will no doubt be filled as soon as their availability becomes widely known. The issue of the new regulations regarding puerperal pyrexia will help in this direction. The lines of general and local treatment have been laid down, and it is greatly to be hoped that with the opportunities thus offered for research and treatment something may be done to mitigate the high mortality of puerperal infection where the blood is found to contain septic organisms. A second innovation has been the allotment of 100 beds at the Northern Hospital for the observation of children between 3 and 16 years of age who have had an attack of lethargic encephalitis. This post-encephalitic unit, which is under the care of Dr. S. A. KINNIER WILSON, is now fully occupied, and even in the short time that has elapsed the transference of such patients from their homes to the atmosphere of the unit has proved highly beneficial. The tiresome inversion of sleep rhythm has been surmounted and only one case so far has proved refractory. The question of a small hospital unit within the section is now under consideration. Other

[1] Twenty-eighth Annual Report of the Metropolitan Asylums Board for 1925–26. To be obtained from the Office of the Board, Victoria Embankment, London, E.C. 4. 5s.

matters of congratulation are the reorganisation by Dr. J. E. MCCARTNEY, appointed director last year, of the pathological services of the various hospitals which are now to be grouped into two central laboratories, that of the Northern Group being completed two months ago. At the Queen Mary's Hospital for Children an experimental unit has been started to deal with 36 girls and 24 boys suffering from rheumatic fever, acute endocarditis, or chorea, research work being now in progress. At the Downs Hospital for Children an artificial sunlight room has been fitted up for the treatment of children suffering from ear disease, rickets, and debility. A veranda has been added to the infirmary at White Oak for the use of children suffering from interstitial keratitis. The revised dietary scale for children, which substituted butter for part of the margarine allowance, has been in operation for a year and is confirmed. These are a sample of the ever progressive activities of the Board's medical staff, of which examples will be given later at greater length.

MENORRHAGIA.

EXCESSIVE bleeding at the menstrual periods is a very common symptom, yet it is one for which, as often as not, no really satisfactory explanation can be found. Even the recognition of abnormal menstrual loss has its difficulties, for what is harmless and natural in one woman may give rise to general ill-health in another. Often, of course, an excessive flow is associated with gross organic lesions of the generative organs, such as fibromyomata of the uterus, and here the accepted mechanical explanation appears adequate. There remains, however, a large majority of cases in which no gross physical change can be detected, and it was these especially that came up for discussion at the Meeting of the Section of Obstetrics of the British Medical Association which we report on page 378. Amongst them perhaps the most interesting are the two forms of menorrhagia which occur, respectively, at puberty and in the second half of the child-bearing period. In the last few years evidence has gradually accumulated that menorrhagia of this kind is not due to abnormality of the uterus itself or of its lining mucous membrane, but rather to an excessive stimulus to menstruation which acts upon them. Unfortunately, the nature of the normal physiological stimulus to menstruation is not yet fully understood. Presumably a chemical hormone is the immediate agent, and the balance of evidence favours the view that this hormone is formed in the Graafian follicle, though the corpus luteum and the interstitial cells of the ovary are both possible sources; it seems clear, too, that the other ductless glands, particularly the thyroid and pituitary, have an important relation to the process.

Soon after puberty there appear examples of hypo- and hyper-secretion, recognised clinically as primary amenorrhœa and menorrhagia of puberty, which are comparable to the cretinism and hyperthyroidism due to abnormal function of the thyroid gland. On this analogy very severe puberal menorrhagia might be treated by removing part of the ovary, though it is questionable whether the results would be better than those of partial thyroidectomy for hyperthyroidism; but, fortunately, nearly all cases of menorrhagia in young girls get better spontaneously, their cure often being hastened if calcium is administered, apparently because the metabolism of calcium is rather intimately related to menstruation. Primary amenorrhœa is of special interest because its treatment may throw light on the mechanism of normal menstruation. It is by no means a rare condition, but the published results of particular forms of treatment are very variable. Sometimes the administration of thyroid and anterior pituitary extracts seems to have established menstruation—cases were recently reported in our columns by Dr. H. GARDINER-HILL and Dr. J. FOREST SMITH[1]—but usually it has failed. An occasional success has also been recorded with various ovarian extracts. It seems possible that in some patients the ovary only needs a slight stimulus from the thyroid or pituitary to establish its secretory function, but where this function is wholly wanting the only hope lies in regular injection of the appropriate ovarian extract. Unfortunately, no satisfactory ovarian extract is at present available; doubtless the ovary supplies more than one substance, and possibly these are mutually antagonistic.

The other and larger group of cases of menorrhagia—those which occur in the later part of the child-bearing period—is not so interesting from the physiological point of view, but clinically is of considerable importance. In these women curettage often reveals a degree of hypertrophy of the endometrium which most pathologists consider to be definitely in excess of that found at any stage of the normal menstrual cycle; but at the age when this condition is found so many diseases may have left their mark on the genital organs that the problem is greatly complicated and probably no one explanation applies to all the cases. So far as investigation is concerned, it seems to be most useful to assume that the ovary is at fault. It is conceivable that anything which causes a thickening of its tunic may, by preventing rupture of the follicles, prolong the period during which ovarian secretion is absorbed, and a few interesting cases are recorded in which ovarian grafts became cystic and gave rise to severe menorrhagia because they were in a position where the follicles could not easily rupture. Whatever the cause of the condition curettage is usually only of temporary benefit—at the Nottingham meeting Mr. COMYNS BERKELEY described it as the commonest and most hopeless operation for hæmorrhage—and in the last few years radium and X rays have been more and more employed as remedies. The results, though variable, have on the whole been good in so far as the menorrhagia is concerned, but most patients are only cured by a dose so big as to cause sterility, and this risk should certainly not be run without profound consideration. Radium is generally effective at first, but when it is used there is a tendency for bleeding to recur after an interval of months, though this is by no means common; X rays, on the other hand, may be some time in acting, but a successful result is likely to be permanent. This suggests that radium has an effect on both endometrium and ovaries, whereas X rays act on the ovaries alone. These methods are simple—perhaps too simple; they are relatively safe and their administration causes the patient very little inconvenience, but they cannot be considered altogether satisfactory, for the ideal of cure must always be the re-establishment of normal function. In this they fail, for sterility is the rule, and too often the symptom treated is replaced by the complex of the menopause. Improvement in technique may lead to better results, but the very way in which X rays and radium act suggests difficulties, and a far more useful therapeutic agent would be the chemical inhibitor of menstruation. The corpus luteum appears to produce such a substance, but efforts to extract it have so far failed.[2] At

[1] THE LANCET, July 31st, p. 219.
[2] A. S. Parkes and C. W. Bellerby: Journal of Physiology, August 6th, 1926.

all discussions of uterine hæmorrhage the need for a standard nomenclature becomes evident. The terms proposed by Prof. BECKWITH WHITEHOUSE were generally approved at the Nottingham meeting, and we take this opportunity of drawing attention to them.

Annotations.

"Ne quid nimis."

THE CINEMA AND THE CHILD.

IN his annual report to the County Borough of Croydon Dr. H. P. Newsholme makes some important suggestions concerning the influence of the cinema upon character formation in the child. Hitherto this influence has been considered as affecting the conscious mind of the child, but Dr. Newsholme believes that the circumstances in which the film is seen—the darkness; the quiet; the sense of expectancy among a crowd intent on the same object; the concentration of the one active sense, sight, on a very bright clearly defined patch of flickering light—all favour an actual hypnotic condition, particularly in the introspective type of child. The emotional content of the film message may thus become sunk in the subconscious mind, to affect the reactions of the child in the many ways that such buried material is known to do. As an illustration he notes the case of a girl, already sensitive, introspective and backward, who saw a film of high "artistic" merit depicting scenes of war and desolation; from the moment of seeing the film she presented a fundamental alteration of character involving periods of extreme mental confusion amounting almost to stupor. She is now under treatment, and it may be noted that modern methods of treating a patient of this kind, if she is accessible to mental exploration, should establish and account for the connexion between the picture story and the mental state that ensued upon seeing it. It is, in fact, the function of psychopathologists to bring such a hypothesis as Dr. Newsholme's to the test of experience. The effect of the cinema has not escaped them, for it has been noted that the cinema has a possibility of stimulating so many unpleasing emotions that it serves as a touchstone to morbid anxiety. The darkness, the crowd, the confinement, and the emotional stimulus of the pictures themselves rarely fail to find a weak spot in the anxiety patient, who therefore usually avoids them. If an individual child is an actual or potential sufferer from morbid anxiety it does not require a hypnotic condition to produce results which the adult sufferer, wise in his generation, has learnt to avoid.

It is probable that whatever harm is done by the cinema is on the unconscious rather than the conscious plane. Suggestions which are recognised are satisfactorily dealt with in consciousness—one may doubt whether the portrayal of crime does more than determine the manner of its performance by a person already disposed to it. But the ill-effect of "suggestive" films, perhaps allowed in the trustful belief that the child will not understand, can arise in the very lack of understanding, for they may stir up that compound of shame, fear, and curiosity which so often exists in the childish mind. At a deeper level lie unconscious tendencies that are beyond the purview of those who recognise only the world of consciousness, and if the censoring of films were entrusted to someone with psycho-analytical knowledge it is probable that a good deal would be excluded which now escapes question. Themes of cruelty, for example, or of dominance or submission, would be suspect through the danger, by a blend of fear and fascination, of stirring up sleeping dogs that might never give trouble if left undisturbed. The popularity of the film depends upon the ease of its emotional appeal as compared with the appeal of the written or spoken word, and it is a sound principle in child-training to allow adequate and useful expression to emotion whilst avoiding unnecessary or excessive stimulation. The problem of the nervous child involves as much unhappiness and inefficiency as does that of the delinquent child, and the dangers of the cinema lie more in the nervous results of excessive stimulation than in any incentive to delinquency. Dr. Newsholme's essay upon the psychopathology of the films, which he feared might be regarded as remote from the matter proper to a school medical report, thus has a practical and immediate bearing upon the well-being of the child.

OPHTHALMIA NEONATORUM.

THOSE who study the Registrar-General's returns from week to week will have seen that hardly a week passes without 100 or more cases of ophthalmia neonatorum being brought to the notice of sanitary authorities in England and Wales, and hardly any annual report of a county health officer fails to record permanent impairment of vision in one or both eyes of some of the children thus notified. During last year 186 new-born babies suffering from ophthalmia were admitted to St. Margaret's Hospital from the metropolitan area, of whom 10 died, 4 became completely blind in one eye, and 20 others were left with impaired sight, and this in spite of every advantage of skilled medical attention and nursing. The Scottish Board of Health two years ago, in calling attention to the serious amount of blindness still being caused by this disease, stated that in their opinion few if any cases could be treated at home with safety. The Scottish health officer was advised to ascertain through his health visitors or visiting nurses the progress of these babies from day to day, in order that hospital treatment should be commenced as soon as the disease showed any tendency to become serious. In London only about one-third of the cases notified reach St. Margaret's Hospital, and on the average not until the ninth day of the disease when corneal ulceration may already have developed. At a representative conference held in London four years ago it was agreed that one of the factors leading to delay in treatment was the dual control of midwives who are at present required to notify the case to the borough medical officer of health (when they believe that this has not been done by a medical practitioner), and also to inform their own supervising authority. The circular[1] issued last week by the Ministry of Health states the decision of the Ministry to place the duty of notification solely upon the medical practitioner in charge of the case. Under the new arrangement the midwife will only have two duties; on observing any inflammation of or discharge from the eyes she will, first, call in a medical practitioner and, secondly, will send word to her immediate supervisor in the midwife service—namely, the county medical officer. Here her statutory responsibilities end. On being summoned to see the child it is the duty of the medical practitioner to consider whether the case is or is not one of ophthalmia neonatorum. If his diagnosis is negative he need not notify anyone, but the public authorities will nevertheless be aware of the case because the midwife has informed the county medical officer (in the capacity of her supervisor) that the eyes were sore and that she called in a doctor to see them. On receiving this information the county medical officer, besides taking steps to find out whether the midwife ought to continue her work, will also arrange—either directly or through the local medical officer of health—that the resources of the child welfare service shall be available in case of need. The officer in charge of child welfare will send a health visitor to visit the home and ascertain the conditions there, and will communicate with the medical practitioner so as to find out whether nursing or other assistance may be wanted. This somewhat complicated circle thus comes back to the practitioner,

[1] Ministry of Health, Circular 617 (London), 617 A (Outside London). H.M. Stationery Office. 2*d*.

providing a double safeguard against possible neglect of the trifling inflammations which may get well in a day or two, but which may, on the other hand, go on to a frank ophthalmia when it will be the duty of the practitioner to acquaint the local medical officer of health. This information in its turn will reach the county officer. In the actual care of the children, the duties of the health visitor are likely to be supervisory only, except where nursing assistance is not otherwise available; the larger sanitary authorities are advised to employ specially trained ophthalmia nurses; in rural areas it may be found necessary to provide a special nurse or to remove the child to hospital for treatment. One of the difficulties of the problem has been the fact that midwives are sometimes reluctant to call in medical help inasmuch as the fee is recoverable later by the local supervising authority from the mother or her husband, who may retaliate on the midwife. Sanitary authorities are asked to consider whether they should not refrain in future from exercising this power of recovery. In London the suggested arrangements are similar except that the onus for supervision and treatment of the case rests on the borough medical officer, the County Council sending an inspector of midwives to the patient's home but not being concerned further with the conduct of the case. The new regulations, if faithfully carried out, should ensure in the future the early care of sore eyes in the newly born before the inflammation becomes of a serious character.

THE FACTORIES BILL.

IN the first week of August the Government's Factories Bill was published as promised. It is intended that the various trades and industries concerned shall have an opportunity to examine it during the autumn, to reach some measure of agreement if possible upon disputed points, and to make representations to the Home Office upon points where modification or explanation is desired. Our Parliamentary correspondent summarised the main provisions of the Bill in THE LANCET last week, when we took occasion to indicate its general lines of policy without exhausting the medical questions raised. The Bill, it may be further stated, declares that women and young persons must not work more than 4½ hours without a break of half an hour for a meal; they must not work more than 10 hours a day or 48 hours a week, nor before 6 A.M., nor after 8 P.M. during the week or 2 P.M. on Saturdays. As a concession to employers who have urgent contracts to fulfil, 100 hours overtime is to be permitted in the year, provided that not more than six hours overtime is worked in one week. The continued employment of young persons under 16 in factories is to be subject to a medical certificate of fitness for such employment after examination by appointed doctors. District Councils are to be given some control of the conditions of home work. They can notify the occupier of a factory or any contractor employed by him that the place where home work is done is "injurious or dangerous to the health of the persons employed therein." The person thus notified is then liable to a penalty of £20 if he gives out any work to be done in that place, unless he can satisfy the magistrates that the place is not in fact injurious or dangerous to health. Among other health provisions of the Bill are a general duty to keep factories clean and free from effluvia, and a requirement to wash or re-colour all ceilings and interior walls every 14 months. There are special directions as to the carrying away of injurious and offensive dust and noxious fumes. Factory inspectors will have power to prohibit underground workshops, and basement bakeries will be prohibited save where they already exist. Provision will be made against spitting. Welfare of workers will be promoted by requirements as to drinking water and as to seats for women. First-aid facilities must be furnished. Safety provisions include fire escapes, the fitting of steam boilers with valves and gauges to avoid explosions, and belt and rope equipment for persons who have to enter places where there is danger of being overpowered by fumes, unless adequate mask apparatus is used. The normal penalties under the Bill are limited to £20 fine or £5 a day for a continuing offence. Where death or injury occurs through the factory owner or occupier's neglect to comply with the new legislation, a fine of £100 may be inflicted, which may be applied by way of compensation. Though the Bill will not please everybody, there seems nothing which cannot be made acceptable by modification and a reasonable spirit of give and take. Politics hardly enter into its consideration, for the Bill is the result of the work of successive administrations, and no party could hold office without undertaking to improve and reform the present state of the law.

AN ENCYCLOPÆDIA OF NUTRITION.

CONTEMPLATION of the subject of nutrition brings to light in a surprising manner the number of different branches of science and literature with which it is intimately related. It may be that the catholicity of nutrition, in subserving the most fundamental function of plants and the most primitive instinct of animals, has as yet hardly received articulate recognition. The remarkable work which Prof. Mayerhofer, of Zagreb, and Prof. Pirquet, of Vienna, have now completed[1] cannot fail to arouse in the reader a recognition of the limitless applications of the subject, as well as a lively admiration for the amazing industry and enterprise of the authors. The work has appeared in five instalments, and takes the form of a miniature encyclopædia, comprising articles of greatly varying length on almost every subject directly or indirectly related to the nutrition of man or beast. The student of history, anthropology, agriculture, zoology, medicine—to mention a few only—will find in it a wealth of information on his particular specialty. The form of the articles is admirable, space being well apportioned according to the relative interest of the subjects, and in general the shorter notices are examples of successful condensation. Among the articles of historical interest which appeared in the earlier instalments were those on cannibalism, fishery, and the nutrition of primitive races. The final volume includes an essay on the ancient history of nutrition written mainly from the ethnological point of view. An exhaustive article on vitamins deals with both the chemical and physiological characters of these bodies and their relative occurrence in various articles of diet. A notable feature of the book, which adds greatly to its usefulness, is an appendix in which is set out a full analysis of over 300 foodstuffs, with the caloric values of the principal constituents of each of them. Every well-equipped library will find a place among its works of reference for this original volume.

PROSTATECTOMY.

IN a recent lecture[2] at St. Bartholomew's Hospital Prof. Hugh Cabot described suprapubic prostatectomy as foolproof, and on this ground commended it to the occasional prostatic surgeon. He made it very plain, however, that uniform success in the treatment of enlarged prostate can only follow a clear understanding of the risks of operation and the management of every patient according to the individual problems he presents. Prostatectomy, as he pointed out, is unlike the ordinary clean surgical operation because, in addition to the insult of the operation itself, it involves the risk of upsetting the renal function and seriously infecting the urinary tract. The symptoms due to enlarged prostate are, generally speaking, those of obstruction; this obstruction may have been going on for years; the kidney has been working against more or less continuous back-pressure, and when the obstruction is removed the

[1] Prof. E. Mayerhofer und Prof. C. Pirquet. Lexikon der Ernährungskunde. In five instalments, costing 5.20, 7.00, 12.00, 12.50, and 16.50 Mk. respectively. Total 1206 pp. Vienna: Julius Springer. 1923 to 1926.

[2] St. Bartholomew's Gazette, July, 1926.

immediate result is a decompensation which is followed immediately by congestion of the kidney and important interference with the secretion of urine. This is shown, as Prof. Cabot remarks, by the sharp drop in renal efficiency almost always noticeable in the first few days after drainage has been started—a drop which sometimes suggests that the kidney's condition has been made worse rather than better by relieving the obstruction. Following decompensation there is infection to be reckoned with; this is the second of the operative risks. "There is, I think, no method," says Prof. Cabot, "by which infection of a urinary tract hitherto uninfected, which has been subject to obstruction and back-pressure, can be avoided . . . and in the case of the infected patient you must probably face an increase of infection." To drain the bladder and remove the prostate at one sitting, thus lays a patient open to the effects of decompensation and infection immediately after the insult of operation, and to this practice is attributable, he considers, the mortality of 25–30 per cent. which good surgeons recorded a quarter of a century ago. Nowadays it is recognised that where a patient's condition is shaky, the three blows should be inflicted at such intervals that he can withstand them separately; this is done, of course, by draining the bladder some weeks or months before going on to remove the prostate. Such drainage can be effected by a preliminary cystotomy or by means of a catheter. In a paper[3] based on over 500 cases Prof. G. de Ilyès, of Budapest, recently declared his general preference for the tied-in catheter on the ground that openings into the bladder maintained over a long period give rise to perivesical adhesions which are troublesome when the prostate is being removed later. Prof. Cabot, on the other hand, condemns the catheter, because it is apt to give only obstructed drainage, which is probably worse than no drainage at all. In about half the cases, he says, the tied-in catheter is unsatisfactory; either it is gravely uncomfortable or it does not drain. This failure may be due to the peculiar conformation of the neck of the bladder, which makes the vesical end of the catheter stick straight into the air, or it may be due to intermittent plugging of the opening into the catheter by pus or muco-pus from bladder or kidney. In a proportion of cases the bladder, ureters, and renal pelvis form a continuous canal, and obstructed drainage means a constant backwash and transference of vesical infection to the kidney in a way which destroys the results of drainage; there is always the chance, moreover, that pressure of the catheter against the middle lobe of the prostate will cause ulceration—an uncomfortable and even disastrous complication. From this Prof. Cabot concludes that suprapubic drainage is desirable; it is easily performed, if necessary under local anæsthesia, and causes little upset to the patient. Renal decompensation follows; and afterwards infection, but not immediately. This infection he regards as not wholly objectionable, so long as it is separated from the actual operation of prostatectomy. Removal of the prostate without preliminary drainage inevitably leads to infection of the upper urinary tract, but if infection has previously been incurred the patient has probably got a temporary immunity which will ward off the dangers following prostatectomy itself.

These, then, are the main advantages of preliminary drainage, and they certainly suggest its employment in all cases where the result of a one-stage operation is at all in doubt. To decide definitely whether such drainage is necessary, and on the time it must continue, it has first to be ascertained what is the renal efficiency and also what is the general health of the patient. Various tests of renal function are available; their merits are still in dispute, but what is important is that a surgeon or pathologist should get to know the significance of those he employs. Dr. J. Marrack and Dr. S. Robinson, of the London Hospital, give an interesting account in our present issue (p. 369) of comparative results of estimating blood-urea, urea concentration, and excretion of phenolsulphonephthalein; their results indicate especially the value of finding out the blood-urea content, the urea-concentration test being useful as a supplement. On the other hand, as has also been shown by I. Cohen, E. C. Dodds, and Shorney Webb,[4] a low urea content in the blood cannot always be regarded as an indication that renal function is normal, and these investigators came to the conclusion that the non-protein nitrogen content and uric-acid content of the blood were the most reliable guide to prognosis. Their figures indicated that the upper limit of safety for a one-stage prostatectomy was 50 mg. per 100 c.cm. for non-protein nitrogen and 3·5 mg. per 100 c.cm. for uric acid. Where the amounts were higher they recommended preliminary cystotomy. Such drainage, if the patient survives, generally improves the renal efficiency, and the question then arises: How long should it be continued? Prof. Cabot answers this by saying that drainage should continue until the patient's renal function is as good as it will become. That is universally less than what is regarded as normal function, partly because a great many of the patients are about 70 years of age. When the efficiency has become stable it may be assumed that the optimum has been reached; function will sometimes improve, slowly at first, until the kidney is working fairly well—better perhaps than it can continue to work; but as long as the efficiency is still variable it is unwise to finish the operation. In the average patient, who has not had prolonged retention, who has little residual urine, and whose urinary tract is already infected, two or three weeks' drainage will probably be enough. The patient with uninfected urine should have six or eight weeks to get over decompensation and to acquire a moderate chronic catarrhal pyelitis. But in those cases in which renal function has been seriously impaired it may be necessary to continue suprapubic drainage for months, or even years, until the patient has got over his period of low renal function so far as he can.

[3] Archives des Maladies des Reins, June 1st, 1926.

[4] British Journal of Surgery, vol. xiii., No. 52.

HOSPITALS AND CHARITIES.

A PREFACE to the 1926 edition of "Burdett's Hospitals and Charities"[5] states that changing conditions have made it possible to reduce some of the sections and have allowed the inclusion of more interesting facts. This year-book, which was founded by the late Sir Henry Burdett and is now in its thirty-sixth year, contains nearly 1000 pages of information about hospitals and allied charities throughout the British Empire. The early chapters are devoted to the great funds and organisations, and there is an interesting discussion on hospital advertising by way of introduction. Especial reference is made to the St. Marylebone Hospital League and to the Sheffield Joint Hospitals Council, of which it is remarked: "Both enterprises are much more than agencies for raising money, and are successfully organising hospital work no less than income in their respective areas. While making hospital contributions as nearly universal as possible, they are coördinators also, and, looking beyond finance, they help and educate their members in the benefits as well as in the duties of civic responsibility." From the successes and failures of the appeal for funds made last year by the Westminster Hospital the moral is drawn that an appeal campaign should be concentrated and intensive, and that advertising is almost useless without the support of every other kind of stimulant, in letters, on posters, on the screens of cinemas and theatres, and, if possible with some sporting or cumulative effort. Mutual coöperation between hospitals issuing appeals is absolutely necessary; they must warn each other of their plans, and this brings

[5] Burdett's Hospitals and Charities, 1926. London: The Scientific Press, Ltd., 28 and 29, Southampton-street, Strand, W.C. Pp. 990. 17s. 6d.

up the interesting question how far group appeals are desirable. Advertising in the newspapers is so expensive that the average hospital generally cannot undertake it. "Such coördination of appeals," says the year-book, "as has been found by experience to be successful is on the less ambitious lines of St. Marylebone Hospitals League and the Sheffield Joint Hospitals Council." It is hardly necessary to make any further recommendation of a book that has long been regarded as comprehensive and accurate, but we are glad to have an opportunity of bringing it to the notice of any reader who does not know that information about hospitals is available in this convenient form.

ERRORS OF JUDGMENT IN CHEMICAL ANALYSIS.

AT a recent meeting of the Society of Public Analysts Dr. J. F. Tocher described[1] the results of an investigation into the nature of the variations of the results of determinations in chemical work, which in the main confirms the views put forward by Egon S. Pearson[2] concerning the existence of a secular movement for each observer when observations are made day after day, and also a sessional movement within a single series of observations made in one day. The experiments were carried out in three series as follows: (1) weighings of a sovereign by students to illustrate the want of sufficient experience, skill, and adequate training; (2) weighings of a piece of lead by skilled workers; and (3) determinations of the concentration of approximately 0·5 N sodium hydroxide solution to illustrate variations in volumetric work by a skilled worker. An important psychological factor was brought out by a calculation of the mean values for succession of observations for a forenoon: the so-called sessional movement thus revealed was shown to be irregular but periodic in character—a result which is at variance with the usual assumption that, for an observer in normal health, variations in personal judgment are due to accidental errors and may be taken as randomly distributed in accordance with the law of frequency described by the normal or error curve. The foregoing observations are of quite a preliminary character, and more numerous and properly conditioned experiments are required to show definitely the nature of the variations in personal judgment in chemical work. Variations in the quality and quantity of indicator used and environmental factors would have to be taken into consideration, and several directions for future work are outlined in the paper. Some of Dr. Tocher's deductions did not pass without criticism in the discussion which followed his paper.

THE SALMONELLA GROUP.

IN a report[3] just issued by the Medical Research Council Mr. Bruce White, B.Sc., tells the story of his investigations upon the Salmonella group of micro-organisms from the stage at which it was left in Report No. 91, published in 1925, in association with Dr. W. G. Savage. The two together represent the most extensive study yet published of the serological and other differences exhibited by the different members of this group. The subject is one of great complexity which becomes more complicated with the discovery of fresh types and of the fact that many of these types can and do exist in different phases. Further confusion arises from the varied nomenclature used by different workers in this and other countries and from the fact that the various experimental methods employed are not always comparable. Mr. White's patient and laborious studies have thrown much light upon the relationships of these different types.

The first section deals with the interrelationship of the Suipestifer-Hirschfeld type, a large number of strains from various sources being serologically compared. Relying mainly upon serological characteristics, but also allowing weight to cultural and biological characteristics, Mr. White recognises four subtypes, which at present and tentatively he finds can be grouped according to their geographical predominance as (1) American, (2) Eastern (the Hirschfeld type), (3) Western European, (4) Glässer-Voldagsen subtype, which is also European. The subtype (1) so far has only been found in swine in America, the Hirschfeld type only as a cause of human diseases in the East, subtype (3) has been found in paratyphoid fever and food poisoning in man, but also occurs in infections in the pig and monkey. The Glässer-Voldagsen strains have only been found as a cause of disease in swine on the European continent. The whole group probably represents a type which is undergoing divergent evolution along several lines, modifications arising rather by suppression of certain characters—e.g., dulcite fermentation—than by divergence by the development of new properties. Dealing with some of the other Salmonella types it may be noted that a new type, "Type L," is described, obtained from a food poisoning outbreak at Reading, while the type mentioned as Breslau, and much referred to in German literature, is definitely identified with the Aertrycke type of English bacteriologists.

A large section of the report is taken up with a study of serological variation in the Salmonella group. The subject is complicated by the fact that three important and distinct forms of serological variation are found to occur within the group. One of these is the "rough" variation from the smooth parent organism, a modification to which the author attaches great importance. A second variation is that of the "H" and "O" forms which are related to heat-labile and heat-stable receptors. The third is the occurrence of two phases, the specific phase and the non-specific phase, as originally described by Sir Frederick Andrewes. Very numerous experiments are described which throw much light upon these variations and the relationship between them. The "H" and "O" forms are of considerable practical importance since each group of receptors, labile and stable, respectively stimulates in the animal body its own special agglutinins to which, and to which alone, it reacts in its own characteristic way. The types of agglutination deposits are different—i.e., floccular and granular. In a very clear and interesting account of the literature of this type of variation the author brings the studies upon flagellar and body agglutinins into line, and gives grounds for believing that these agglutinins are coincident with the "H" labile and "O" stable antigens as originally described by Weil and Felix.

Sections III. and IV. deal with further observations on the antigenic structure and relationships of the Salmonella types. They contain a very large number of observations based upon an immense mass of experimental research. Most of them deal with the serological relationship of the known types. The puzzling relationship of *B. typhosus* serologically to the Stanley type of Salmonella was studied, and Mr. White reaches the conclusion that it does not seem possible to exclude *B. typhosus* from the Salmonella series. *B. morbificans bovis* is recognised as a special type. The fowl typhoid types (*B. sanguinarium* and *B. pullorum*) have hitherto been regarded as outside the true Salmonellas, but the author concludes that these are degenerate strains but of true Salmonella ancestry and must be included.

Section V. deals with the phylogeny and classification of the Salmonella group. Mr. White approaches them from an evolutionary standpoint and relies mainly upon serological characteristics, giving but little weight to cultural and biological behaviour. While much of this discussion is theoretical it is justified by the massive array of experimental work and at least gives some coherent view of the relationship of the different members of the group. As an example of his methods it may be mentioned that since, for the types which exhibit "specific" and

[1] Analyst, July, 1926.
[2] Biometrika, 1922, xiv., 23–102.
[3] Special Report No. 103, H.M. Stationery Office. 1926. 5s.

"non-specific" phases, all are inter-agglutinable freely in the non-specific phase, this can only be attributed to the existence of a common factor or group of factors running through the entire series of types named, but unknown elsewhere. In the distribution of the other non-specific factors there is much irregularity, but everywhere overlapping occurs which welds this series of types together into an intricate but compact system. From these facts he accepts the series of diphasic types as derived from a single ancestral source. The monophasic types offer greater difficulties but show definite general evidence of relationship. Both monophasic and diphasic types show sound agglutinative evidence of true relationship to one another, and the grouping, originally on cultural grounds, is sound. It is of interest to note that the *B. enteritidis* type is considered as the most primitive of known Salmonellas and that the others branched off from this strain.

As Mr. White points out, a deeper study of antigenic relationships, far from suggesting a rational method of subdividing the group, has proved more than ever destructive to such an idea. Several forms hitherto excluded have had to be included and the varieties in the group are more complicated than ever. His final, but still tentative classification, is as follows:—

Meta-Salmonella Types.—Pullorum and Sanguinarium.

Monophasic Series—(1) Paratyphosus A, (2) Typhosus, (3) Enteritidis, (4) Derby, (5) Abortus Equi, (6) Dar-es-Salaam.

Diphasic Series—(1) Paratyphosus B, (2) Stanley, (3) Aertrycke, (4) Newport, (5) Morbificans Bovis, (6) Reading, (7) Sendai, (8) Suipestifer-Hirschfeld.

Some may feel that theoretical conceptions of this kind as a basis for classification are out of place or at least premature. It is, however, quite certain that the present welter of unconnected facts and observations about members of a large group of bacteria is not likely to be diminished until some coherent scheme of relationship is established between their different members, and to evolve such a scheme an evolutionary basis is probably the most helpful.

A MODERN PILGRIMAGE.

THE Order of the Hospital of St. John of Jerusalem, though fallen in some measure from its former high estate, yet continues in the body of the Grand Priory of England to carry out the precept of the first Master of the Order, the blessed Raymond du Puy, to the effect "that the Knights who should make their profession in it should adorn their Knighthood with a true Charity, the mother and solid foundation of all Virtues." Apart from its great work in organising first-aid and ambulance, the Order maintains an ophthalmic hospital at Jerusalem. After the Great War the members of the English Priory were anxious to visit the ancient homes of the Order in Jerusalem, Rhodes, and Malta, and the various scenes of the doings of the Order in the East; an official pilgrimage was therefore arranged leaving Venice by sea on March 4th last and going by way of Jerusalem and Haifa to Cyprus, Rhodes, Malta and so back to Venice. They had an extraordinarily interesting journey and Colonel King gives an excellent account of it in an official journal now published.[1] It should be of interest to compare the accounts of their comfortable journeys with that given by an earlier pilgrim to the Holy Land. The unhappy Father Felik Fabri described his sufferings on the galley about the year 1480 in the vivid phrase: "Multis noctibus fui, quod nunquam clausi oculum." The most striking episode of the recent pilgrimage was the corporate communion of the pilgrims in the ancient conventual church of the Order in the Muristan. It dates from the sixth century and is now known as Mar Hanna, which should be a Syriac title. Colonel King gives an admirable photograph of the interior of the building. Everywhere the pilgrims met with courtesy and unbounded hospitality, and the journey must have left unforgettable memories.

[1] The Pilgrimage of 1926: being the Official Journal of the Knights of St. John. By Colonel E. J. King, C.M.G. With an introduction by Major-General the Earl of Scarborough, G.B.E., K.C.B., Sub-Prior. London: St. John's Gate. 1926. Pp. 144.

TUBERCLE-FREE MILK.

To ensure that a herd of cows shall supply milk free from tubercle bacilli it is necessary to eliminate all those animals which react when tested with tuberculin. Unfortunately, this is a troublesome and expensive thing to do. The extra cost of the tuberculin-tested cow varies, of course, in different places and under different conditions, but the estimate of £2 5*s.* per annum, given a few months ago at Reading,[1] is probably not too high. The average loss on every cow that reacts positively and has to be got rid of may be taken as somewhere about £10, and strict precautions must be taken against infection, so that unless there is a large demand for Certified or Tuberculin-tested milk the farmer may find his adventure into hygiene somewhat unremunerative. It has its compensation, however, in a lessened morbidity amongst the animals, and the number of tubercle-free herds in this country is steadily increasing. We learn with regret from Sir John Robertson's annual report on the health of Birmingham that during 1925 the number of such herds included in the Birmingham tubercle-free scheme fell from 24 to 22. Even where a good market is assured the farmer's difficulties do not end with the removal of reactors from his herd, for he is faced with the necessity of keeping up the number of his stock, which can only be done by breeding within the herd or by importing fresh blood. Opinion differs as to the qualifications required of an animal before its introduction into a tubercle-free herd. Some authorities consider that it should be kept apart until it has been tested, quarantined for six months, and again tested with negative result; this is perhaps a counsel of perfection and is certainly a costly proceeding. Prof. G. H. Wooldridge, at the Reading conference, advised a medium course and said that no animal should be admitted straight into the herd unless it comes from another tubercle-free herd, and that in general one month's isolation is needed in case the cow, although not at present reacting to tuberculin, should be suffering from infection as yet undeveloped. Most of the troubles of owners, he remarked, were caused by cows being given the benefit of the doubt. Under the Birmingham scheme 15 of the herds are maintained by breeding, but even here constant vigilance is necessary, and last year seven of them had reactors at the half-yearly tests. It must be remembered that cattle long kept away from all tuberculous infection are likely to lose their immunity and may become so susceptible as to succumb at the first opportunity. This problem seems to present epidemiological problems for further study. At the present time tubercle-free herds are comparatively rare, and nearly all milk is derived from herds which have not been tested, but more and more care is being taken to discover and remove cows which are supplying frankly tuberculous milk. In Birmingham, of 681 samples examined 52 were found to be infected with tubercle bacilli, and in most cases the offending animals were followed up and slaughtered. The Tuberculosis Order, which came into force on Sept. 1st, 1925, has been helpful in securing the elimination of these cows because it provides some means of compensating their owners. The technique employed for the discovery of infection seems to be variable, for the results of sampling in different areas are remarkably different. In the annual report of the medical officer of health for Glasgow, for instance, it is stated that 360 samples of mixed milk from road and rail transport and from milk supplied to the hospitals were examined for tubercle bacilli without any being found, which suggests an improbable superiority over milk in the Birmingham district.

[1] THE LANCET, 1926, i., 777.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CLXXXVI.

THE TREATMENT OF ACUTE IRITIS.

IT may appear a truism to state that the first and most important step in treatment is accurate diagnosis, but nevertheless in dealing with the question of acute iritis this point must be particularly stressed, since in this case a mistaken diagnosis may lead to one of the gravest possible errors of treatment. Patients with either acute iritis or acute glaucoma complain in the first instance of redness and pain in the eye accompanied by disturbance of vision. It is of paramount importance to distinguish between the two diseases since their treatment is diametrically opposed and in either case injudicious treatment may be fraught with the most serious consequences.

Differential Diagnosis.

Acute iritis may be distinguished from acute glaucoma by means of (1) the condition of the pupil, (2) the depth of the anterior chamber, (3) the intraocular tension, and (4) the subjective symptoms.

1. *The condition of the pupil* is of the utmost importance. In iritis the pupil of the affected eye is smaller than that of its fellow. It reacts sluggishly (and often irregularly) to light. In glaucoma the pupil is semi-dilated, usually vertically oval in shape, and absolutely immobile.

2. *The anterior chamber* is deep in iritis and very shallow in glaucoma.

3. *The intraocular tension* is variable in iritis. It is usually slightly raised and becomes higher the greater the involvement of the ciliary body—i.e., in iridocyclitis. In glaucoma the eye is stony hard. The estimation of the intraocular tension, especially in painful eyes, requires a certain amount of practice and experience, but the extreme hardness of the glaucomatous eye can usually be appreciated with ease.

4. *Subjective symptoms.*—In acute iritis the pain is referred to the eye and to the region of distribution of the ophthalmic division of the fifth nerve only. In glaucoma it is much more severe, often spreads to the areas supplied by the second and third divisions of the fifth and may be accompanied by vomiting and collapse. Disturbance of vision in iritis depends directly upon the degree of turbidity of the aqueous and is seldom reduced below 6/18, while in glaucoma it is seriously impaired, appreciation of hand movements or even perception of light only being present.

Other signs of iritis, such as posterior synechiæ (adhesions of the iris to the anterior capsule of the lens), greenish discoloration of the iris, turbidity of the aqueous, &c., may be immediately obvious and will clinch the diagnosis, but they may be hard to discover without elaborate methods of examination. In some cases of acute iridocyclitis with raised tension and œdema of the cornea, the diagnosis may be one of extreme difficulty, and the recent improved method of focal illumination by means of the slit-lamp[1] and binocular microscope may be employed with advantage, since it will show definitely the presence or absence of even a slight amount of aqueous haze or a few minute deposits on the back of the cornea.

The question of diagnosis being settled in favour of iritis, the treatment must be carried out thoroughly if serious complications are to be avoided. In all cases an attempt should be made to ascertain the cause, since treatment to be efficient must be general as well as local.[2]

Local Treatment.

The objects of local treatment in iritis are three: 1. To dilate the pupil so that the risk of adhesions forming between the iris and the anterior capsule of the lens is reduced to a minimum. 2. To place the iris and ciliary body at rest. 3. To relieve the congestion and pain.

Mydriatics.

A mydriatic should be instilled into the affected eye as soon as possible. A 1 per cent. solution of atropine sulphate is most commonly used, but in severe cases an ointment containing 1 per cent. or 2 per cent. of the pure alkaloid may prove more efficient, as it is easier to apply, and its action is more continuous. The atropine must be pushed until full dilatation of the pupil is obtained, after which it is only necessary to maintain this condition. In obstinate cases it is better to increase the frequency of the application (every two to three hours will usually be sufficient) rather than the strength of the preparation, though occasionally it may be necessary to make a single application of a small particle of solid atropine. This should always be done by the surgeon himself, who must see that the patient keeps the lachrymal passages occluded with the finger during its action, otherwise severe symptoms of poisoning may result. There is little risk of poisoning with the 1 per cent. ointment, though a fair number of patients will complain of dryness of the throat after it. Watch must also be kept for signs of "atropine irritation" which may come on in susceptible individuals after a day or two, usually not immediately. It is characterised by extreme congestion of the conjunctiva with œdema and redness of the skin of the lids, often spreading to the cheek and resembling erysipelas. If it occurs some other mydriatic (hyoscine, scopolamine, or duboisin) must be substituted and the affected skin treated with a cooling preparation, such as zinc ointment or calamine lotion.

The Application of Heat.

The use of a mydriatic alone often does wonders in decreasing pain and congestion, but it is usually wiser to combine it with the application of some form of heat. The simplest form of hot application is the fomentation, but this needs to be very frequently changed and is apt to produce a sodden condition of the lids. It is, therefore, better that the patient should bathe the eye thoroughly with boracic lotion as hot as can be borne for a quarter of an hour at a time every three to four hours, covering it in the intervals with a heated pad of dry sterilised wool. This hot bathing can be most efficiently carried out by means of an ordinary wooden spoon, the bowl of which is covered with lint. The patient dips this in a basin of hot lotion and applies it to the closed lids, repeating the process and adding more boiling water as the lotion cools. If preferred, dry heat alone may be employed. For this purpose a Japanese muff warmer will be found invaluable. It can be lightly bandaged over a pad of wool placed on the closed lids and will keep hot for a considerable period.

Leeches.

In cases where there is much hyperæmia and severe pain a couple of leeches may be applied to the temple just behind the external angular process. The bleeding may with advantage be encouraged by warm sponging after the leeches have dropped off. Relief is considerable and almost immediate.

General Treatment.

Every effort must be made to ascertain the cause. Syphilis, gonorrhœa, rheumatism, gout, diabetes, and tubercle must be considered. Occasionally the appearance of the eye may give a clue to the cause. In syphilitic cases there is a good deal of exudate and a tendency to the formation of broad synechiæ. Iritis of this type is most common in the secondary stage, and a search should be made for accompanying skin lesions and faucial ulceration. In the tertiary stage a gummatous iritis may occur with localised nodules on the iris. In the rheumatic and gonorrhœal types (which may be difficult to differentiate) the exudate is less dense and has a greyish gelatinous appearance. A tuberculous iritis alone is rare; it is usually accompanied by a cyclitis. Pain is not a marked feature, but dimness of vision may be severe owing to the presence of cellular deposits on the back of the cornea (K. P.).

[1] T. Harrison Butler: Clinical Use of the Slit Lamp: THE LANCET, August 14th, 1926.

[2] Traumatic iritis due to direct infection through a perforating wound is not here dealt with, nor is the iritis of sympathetic ophthalmia.

The age of the patient may be of some assistance. An iritis occurring in infants is almost certainly syphilitic in origin. Tubercle is more common in adolescents, while acquired syphilis and gonorrhœa usually make their appearance between 20 and 40, and gouty and diabetic cases often occur in later life. In all doubtful cases a search should be made for septic foci—e.g., teeth, nasal sinuses, tonsils, &c.

In all cases treatment should commence with a sharp purge, and attention to the bowels should be continued throughout the attack. The patient should be confined to the house, and if possible to bed. Aspirin should be given for the relief of pain. It is seldom necessary to resort to morphia. In syphilitic cases it is essential to get the patient under the influence of mercury as soon as possible and a full course of antisyphilitic treatment should be instituted. In both the rheumatic and gonorrhœal cases sodium salicylate is of benefit and should be given heroically. It is best to start with a 10 gr. dose every four hours and increase this rapidly by decreasing the interval between the doses until definite signs of intolerance (headache, buzzing in the ears, and deafness) are produced. The use of vaccines during the acute stage is not to be recommended.

In the tuberculous cases attention should be paid to the environment. Open-air treatment, adequate rest, fattening foods, and attention to septic foci are all essential. Tuberculin injections appear to do good in a certain number of cases, and more recently excellent results have been obtained by generalised ultra-violet irradiation. It must, however, be realised that the tuberculous cases tend to pass into a condition of chronic iridocyclitis, one of the most difficult of eye diseases to treat.

Operative Treatment.

No operation is ever necessary in the acute stage of a pure iritis. In cases of acute iridocyclitis with raised tension a paracentesis may occasionally be performed, but conservative measures are usually successful. Operation is only required for complications of iritis due in most part to inefficient treatment during the acute stage. Posterior synechiæ, exclusio and seclusio pupillæ, iris bombé, secondary glaucoma, and cataract may all call for operative interference later, but it is out of place to deal with them here, since it is the object of early treatment to avoid their occurrence.

Prognosis.

The patient should be reassured as much as possible, but every effort should be made to impress on him the necessity of thorough treatment, which must be kept up even after the subsidence of acute symptoms. A mydriatic should be used for at least a fortnight after all pain and injection have disappeared or there is a danger of recurrence. The syphilitic cases should be warned to carry out treatment in detail, since, although a recurrence of iritis is improbable, it is usually a sign of a severe infection. In rheumatic and gonococcal cases the prognosis with regard to recurrence should be more guarded as it is difficult to eradicate the cause. In tuberculous cases the outlook is always grave, both for the eye and because there is a possibility of general dissemination.

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EXTENSION OF ST. BARTHOLOMEW'S HOSPITAL, ROCHESTER.—The buildings of this ancient institution, which was founded in 1078, reconstituted in 1858, and reopened in 1863, are in certain respects inadequate, and a fund of £80,000 is being raised for necessary extensions. It is proposed to increase the number of beds from 105 to 157, to enlarge the orthopædic and out-patients' departments, to provide a self-contained theatre for minor operations in an improved casualty department, and new X ray rooms, and to make other additions and improvements, including further accommodation for the nursing and domestic staffs.

Special Articles.

THE INTERNATIONAL SANITARY BOARD OF CONSTANTINOPLE.

IN the autumn of 1914, a few weeks before Turkey came into the war on the side of the Central Powers, the Constantinople Superior Council of Health ceased to exist as an international body. By a stroke of the pen the Turkish Government eliminated the foreign delegates and converted the Council into a purely Turkish organisation. Under the Treaty of Lausanne of 1923 the demise of the Board was formally recognised, but it was at the same time stipulated that a special Commission should be set up to liquidate its affairs and administer its estate. The nature of the Commission's mandate is clearly laid down in Art. 116 of the Treaty :—

"Turkey undertakes to respect to the full the right of dismissed sanitary employees to an indemnity, to be paid out of the funds of the former Superior Council of Health of Constantinople, as well as all other established rights of the employees and ex-employees of that Council and their heirs. All questions relating to these rights, to the destination to be given to the reserve fund of the former Council, to the final liquidation of the former Sanitary Administration, and all other similar or connected questions, will be decided by a Commission ad hoc, which will be composed of one representative of each of the Powers formerly represented on the Superior Council of Health of Constantinople, with the exception of Germany, Austria and Hungary. In case of disagreement among the members of that Commission on any question relating either to the above liquidation or to the affectation of the funds remaining after that liquidation, any Power represented on the Commission will have the right to refer the matter to the Council of the League of Nations, which will give the final decision."

This Liquidation Commission held its first meeting on Feb. 19th, 1925, and its final meeting on June 12th of this year. The task with which it was charged was by no means a light one. On the one hand were a large number of ex-employees of the former Turkish Sanitary Administration, whose career and prospects had been blighted by the changes brought about in the Board, and an even larger number of pensioners whose established rights had been seriously threatened by those changes; on the other was an entirely new and purely Turkish Sanitary Administration, which claimed to be regarded as the lineal successor of the former Administration and, as such, to be entitled to at least a portion of the latter's estate. Fortunately the reserve funds of which that estate was mainly composed were not only considerable in amount, but, being placed in various Government stocks of the first character and deposited mainly in English and French banks, had survived the war almost intact and were at the disposal of the Commission to meet the above conflicting claims.

With the completion of the work of the Liquidation Commission a not unimportant chapter in the history of international disease control comes to its final close. For over three-quarters of a century the Constantinople Board of Health had shared with the corresponding body in Alexandria the task of endeavouring to keep plague, cholera, and other pestilential diseases from penetrating into Europe from their endemic centres in the East. Of the nature of the barriers which it set up against those diseases a clear idea may be gathered from articles that have appeared at intervals in THE LANCET.

The task of the deceased Board was, indeed, a complex one. It administered many large lazarets and health offices extending from the Persian Gulf and Turco-Persian frontier on the East to the coasts of Albania on the West, and from the shores of the Black Sea on the North to those of Arabia and the Cyrenaic Peninsula on the South. It was charged by successive international conferences and conventions with the sanitary control of the Moslem Haj to Mecca and Medina, of the Shiah pilgrimage and

transport of dead bodies to the Holy Places in Mesopotamia, and of the Hejaz Railway. The disappearance of an efficient international organisation, aimed at checking the spread of disease by those various channels, and its replacement by a purely Turkish body, must naturally raise the question whether the health of Europe may not be seriously menaced by the change. The menace is, perhaps, considerably less serious than it would at first sight seem to be; for, with the vast territorial changes brought about by the war, the task of the present Turkish sanitary administration has been immensely reduced and simplified, both as regards the area for the sanitary supervision of which it has assumed responsibility and the problems which it will have to solve. The two Moslem pilgrimages, Sunni and Shiah, no longer take place on Turkish territory; the Hejaz Railway has passed to other Powers; the majority of the large lazarets (such as those of Basra, Khanikin, Camaran, Jeddah, Clazomene) and health offices that the Board administered are now administered by the sanitary authorities of various other countries. Briefly, indeed, the principal—almost the sole—really important charge laid on the present Turkish Administration is that of applying measures in the Straits (Bosphorus, Sea of Marmora and Dardanelles), and we have little doubt that this question will continue to engage the attention of the permanent international health bodies of Geneva and Paris.

A MODERN OBSTETRIC THEATRE.

PART of a theatre on the fourth floor of the new Obstetric Hospital presented to University College Hospital by the Rockefeller Foundation and opened last June is shown in the accompanying photograph.

On the extreme right is seen a doorway into the theatre sterilising room, where there are sterilisers for bowls, instruments, hot and cold water, and saline solution. The outlet pipes for water and saline run through the wall into the theatre where the supply is regulated by pedals; the taps and regulators are seen to the left of the hatch or window in the dividing wall. The two instrument sterilisers are placed at the level of this hatch, and by means of the pedal just below it the covers of the sterilisers can be raised and the instruments taken through the hatch by those in the theatre, which makes it unnecessary for anyone to pass in and out of the theatre during operations. Ventilation is so arranged that the steam from the sterilising room is drawn out through the roof and does not escape into the theatre. The main dressing steriliser is in a separate room and all the sterilisers are heated with steam from the main boilers. Near the theatre is a washing-up room for the surgeon and assistants, whilst anæsthetic and recovery rooms open out of the theatre itself. There are two galleries for the use of students, who gain access to them from the floor above and not through the theatre itself. One of them is on the theatre floor level immediately below the north window and is seen to the left of the photograph. The other is higher up and has a plate-glass screen cutting it off from the main theatre. At the end of the gallery will be seen one of two movable projection lamps on a ball-and-socket joint for illuminating the field of operation in the lithotomy position. For general purposes the theatre is lit by flush ceiling lights, whilst for operations the Scyalitica shadowless lamp hung from the centre of the ceiling is used. The floor is made of marble terrazzo paving, and the walls, up to the height of 8 feet, have a light green Biancola marble finish; above this enamel paint is used. The junction between walls and floor is rounded.

NEW OBSTETRIC THEATRE AT UNIVERSITY COLLEGE HOSPITAL.

MEDICINE AND THE LAW.

The Legal Definition of Live Birth: A Gap in the Law.

Dr. Godfrey Carter's paper on the Legal Definition of Live Birth, read before the British Medical Association at Nottingham in July, commented upon a remarkable gap in the criminal law of England. It is neither murder nor manslaughter to kill a child until it is born. So far as murder and manslaughter are concerned, the law does not deem a child to be born until the whole body of the child is brought alive into the world, having an independent circulation, and breathing, or capable of breathing, from its own lungs, so that it possesses, or is capable of, an existence independent of connexion with its mother, though the child may legally be deemed completely born in spite of the fact that the umbilical cord is not severed. That is how the law is stated in Lord Halsbury's "Laws of England," and, as Dr. Carter remarked, the legal requirement of evidence of an independent existence after the complete extrusion of the child seems to have arisen in the ignorant past at a time when it was believed that a fœtus drew its blood direct from its mother's circulation. To this legal definition must be added two judicial decisions. In 1834, Park, J., held that a child born alive could be the subject of a murder, though it had in fact not breathed; and in 1837 it was held that the fact that a child had breathed was not conclusive proof that it had been born alive, as it might have breathed and died before birth.

Dr. Carter makes the points that an appreciable number of full-term healthy infants lose their lives through deliberate interference during birth, that this interference occurs in the endeavour to conceal birth, that it occurs in secret and often without the connivance of a second person, and that the law assumes the child to be born dead unless satisfactory evidence is produced to the contrary. He quotes with approval a Scottish ruling given by Lord Young to a jury in the High Court of Perth in 1892, in a case of alleged infanticide, which is worth repeating.

> "If the child was killed, and the prisoner was to blame for its death, she is guilty of culpable homicide. If she went on from the conception to the birth of the child, desiring to hide her shame, and refrained from calling assistance when assistance was at hand, and took upon herself to assist herself, and in the agony of childbirth grasped the throat of the child with the result of causing its death, I cannot say that she is not blameworthy or that her blameworthiness does not amount to culpable homicide. If you think that blame does attach to her, then culpable homicide is the name for that blame, resulting as it did in the death of a child which had both cried and breathed. It does not matter in the least, so far as the criminality of the accused is concerned, if the injuries were inflicted when the child was partly in its mother's body."

But those words cannot be taken as a statement of English law, nor does English law accept without considerable reservation a dictum by the late Mr. Justice R. S. Wright (quoted by Dr. Carter as having been uttered in a case at Shrewsbury Assizes in 1901) to the effect that the test of separate existence is the question whether the child is carrying on its being without the help of the mother's circulation. The Royal Commission on Capital Punishment in 1865 recommended statutory provision for punishing the infliction of grievous bodily harm or serious injury upon a child during its birth or within seven days afterwards, and added that no proof should be required of the fact that the child was completely born. A later Commission (in connexion with the draft code) proposed to enact that "every woman shall be guilty of an indictable offence who, being with child and being about to be delivered, with intent that the child shall not live, neglects to provide reasonable assistance in her delivery if the child dies either just before, or during, or shortly after birth, unless she proves that such death was not caused either by such neglect or by any wrongful act to which she was party." This rather cumbrous clause would have met Dr. Carter's difficulty, but the recommendation has never been taken further. Presumably Parliament would be unwilling to interfere with the traditional principle which leaves the burden of proof upon the shoulders of the prosecution. The type of accused person at whom the change in the law would be aimed is usually the unhappy mother of an illegitimate child, an object of general sympathy. A change in the law might secure more convictions, but the whole policy of Parliament is to mitigate punishment in such cases; indeed, it was necessary to pass the Infanticide Act of 1922 because of the unreality of passing sentence upon such mothers where the death of a newly-born child was caused by some wilful act or omission at a moment when the mother's balance of mind was disturbed. It is doubtful if a mother under such circumstances would pay much attention to the wording of an Act of Parliament, whether the law remains in its present state or whether it is changed as the two Commissions have recommended. Dr. Carter argues rightly that to place the burden of proof upon the mother would force her into the witness-box to state how it came about that the child did not survive; she would then be liable to cross-examination. But the cross-examiner would have a repugnant task, and the jury—whose undefined privilege it is to temper the keen edge of the law—would readily allow their verdict to follow their natural feelings of sympathy. Nevertheless, the law is at present surprisingly unsatisfactory, and it is highly desirable that the legal definition of what constitutes live birth should be reconciled with modern science.

Drunkenness while in Charge of Motor-Car: Defence of Insulin Poisoning.

A physician practising at Bentinck-street, W., charged at Marylebone police-court on August 13th, raised an unusual defence to a charge of being drunk while in charge of a motor-car, and driving in a manner dangerous to the public. He gave evidence that his disability was due, not to alcoholic poisoning, but to an overdose of insulin, and he called four doctors who agreed in stating that the symptoms of insulin poisoning might easily be mistaken for those of alcoholic poisoning. He was fined £20 with 10 guineas costs on the charge of drunkenness, and £10 on that of dangerous driving with the alternative of 21 days imprisonment. The magistrate ordered the convictions to be endorsed upon his licence, and the accused was disqualified from holding a licence for 12 months. As the case is subject to appeal, further comment is withheld. The evidence for the prosecution was that the defendant's motor-car about midnight mounted a pavement in St. John's Wood, ran along it, recrossed the road, ran into a lamp-post, rebounded, and came to rest against a garden wall. On being spoken to by a policeman, he was said to have driven across the road again into the same lamp-post. The constable's evidence, confirmed by the divisional surgeon, was that the defendant was drunk.

Dentistry in the Market-place.

A coloured man who was selling tooth-powder in a street in Liverpool was on August 10th fined £5 at the police-court for practising dentistry without being registered under the Act of 1878. It was alleged that he had performed an extraction with his finger and thumb so as to show his knowledge of dentistry. On behalf of the defendant it was stated that no payment was made for the extraction, and the question arose whether the extraction could be described as such work as is usually performed by qualified dentists. The deputy-stipendiary ruled that it could and that the defendant had obtained a reward in the way of an advertisement for his tooth-powder.

Dangerous Drugs: Withdrawal of Permit.

The Home Secretary gives notice that he has directed that the exception in Regulation 4 of the Dangerous Drugs Regulations, 1921, which permits dangerous drugs to be supplied on a prescription given by a duly qualified medical practitioner, shall

not apply in respect of prescriptions given by Frederick George Lewtas, M.R.C.S., L.R.C.P., at present residing in the Slade Nursing Home, Bideford, Devon. A prescription signed by Dr. Lewtas will therefore not be any authority for the supply of any of the drugs to which Part III. of the Dangerous Drugs Act, 1920, applies, and any person supplying the drugs on such a prescription will be committing an offence against the Acts. Dr. Lewtas's authorisations as a duly qualified medical practitioner to be in possession of and supply raw opium and the drugs to which Part III. of the Act of 1920 applies were withdrawn in June, 1925.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Vienna Dermatologists.

Prof. Ernst Finger, director of the first dermatological clinic of the University, has reached his seventieth year and, according to the regulations, should now retire. But in view of his exceptional knowledge and experience the Senate has asked him to continue for an honorary year at the clinic so that his services may be still at its disposal. Prof. Finger is one of those rare men who combine the qualities proper to the physician, the teacher, the investigator, the organiser, and the critic. His comprehensive personality has won the admiration and affection of countless students and patients and has given him high international reputation. Since his work began in 1880 it has covered most of the field of venereology. Besides his investigation of the gonococcus and his experiments (with Landsteiner) on syphilis in apes, Prof. Finger has been responsible for various dermatological studies, especially on tuberculous and atrophic conditions of the skin and on the problems of immunity. More recently his attention has been turned to social medicine, and to his unceasing efforts are ascribed the immense benefits of energetic treatment of venereal disease in the Austrian army during the war. He organised a hospital for prostitutes, which was the first of its kind on the continent, and his text-books have been translated into most European languages.

Prof. Leopold Arzt succeeds Prof. Gustav Riehl as chief of the second dermatological clinic. He was born in Vienna and has spent his whole life in the city, which was undoubtedly one of the reasons for his being preferred to others nominated for the appointment; there is nowadays a tendency to refrain from calling in men from abroad to the leading positions. His scientific attainments, moreover, are certainly sufficient.

The Weight of the Brain.

Dr. Pape and Dr. Kopelzky have reported on a series of 833 brains which they have examined. The average weight of the brain, they find, is 1363 g. in males and 1260 g. in females. During the first five years of life it is doubled, but during and after puberty it increases but little; the highest average weight is found in the age-period 11–15 years, when it is 1443 g. in boys and 1396 g. in girls. During the climacterium, these observers consider, the weight is rather greater than might be expected from the fact that after puberty it generally diminishes in a steady curve. The gradual diminution is due partly to atrophy and partly to the fact that many persons with heavy brains die early in life. The extremes of variation are commoner amongst men than women, perhaps because of an alleged further biological differentiation. One adult had a brain weighing 1750 g. which did not show any pathological changes, whilst a boy of 3 had a brain weighing 1700 g. Amongst suicides the average weight was found to be 100 g. more than normal and no brains classed as light occurred in this group. In all these investigations it is necessary to take into consideration the incidence of pathological conditions such as tumour and meningitis at the various ages.

Uncompleted Medical Studies.

There is a remarkable disproportion between the number of students who matriculated 6–10 years ago and the number of degrees granted by the University during the last five years. Evidently many students change their minds and take up other occupations before they reach the end of their studies, or else they complete their training somewhere else, which is unlikely since a large proportion of them come from abroad—e.g., the Balkans—and have no opportunities for study elsewhere. No doubt it is the economic factor that is responsible, but whatever the cause, only 1200 students graduated here in 1924–25, though there were 2780 first-year students in 1919–20.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Care of the Disabled.

OF 1,500,000 disabled soldiers in this country more than 660,000 are still in receipt of a pension. The allowance of those whose impairment of efficiency was less than 25 per cent. has been capitalised, but those disabled by more than 50 per cent. are described as Schwerbeschädigte and enjoy certain privileges—for instance, employers must find work for a certain number of them. There are 2734 blind among the victims of the war, and the pensionaries include 39,000 men suffering from tubercle whose disease was contracted or aggravated by service. Some 5000 men are registered as mentally affected, and over 44,000 have lost a leg or a foot, this disability being almost twice as common as the loss of an arm or hand. The great development of orthopædic technique, however, has enabled the majority of them to work. Since 1924 the number of applicants for disablement allowance has increased, as the bad economic state of Germany has made a pension necessary to many who were previously able to do without it. The number of widows is 365,000, and the number of fatherless children 962,000, of whom 65,000 have lost both parents. A sum of 1,491,800,000 marks—nearly £75,500,000—is spent every year on the support of war victims. This is about 30 per cent. of the whole German Budget.

Voronov's Operation.

Before the Society for Sexual Research Prof. R. Mühsam lately read a paper on the results of transplanting the testicles by Voronov's method. He gave particulars of seven patients on whom he had operated, one of whom was eunuchoid, two impotent after castration, one bisexual, and four homosexual. Shortly after operation the results seemed to be rather satisfactory, but the improvement was transitory and lasted only for periods varying from a few days to several months. The eunuchoid patient had erections for two months; the homosexual patients had dreams of heterosexual character, but were incapable of normal intercourse, and similar results were obtained in the case of those castrated. Only in the bisexual patient was the result satisfactory; his desires became male in character and at last he married and begot a child. The apparent efficacy of the operation in the early stages is obviously due to the hormonic effect of absorption from the transplanted organ.

Before the same society Prof. E. Joseph read a paper on the influence of suprapubic prostatectomy on the sexual power. He had performed the operation, he said, in 78 patients, in 52 of whom reliable answers to his question about sexual function were obtained. Only one patient said that his sexual power had totally disappeared after the operation, whilst of eight patients over 70 years of age five had regained their sexual power. Of the patients under 70 years of age, in eight the sexual power had totally disappeared before the operation and was not restored, whilst in 34 improvement was observed. As he pointed out, however, it is difficult to say whether

the regeneration occurs because the general state of health is improved, or because the operation frees the seminal vesicles from the pressure of the enlarged prostate. Some of the patients complained that whilst the libido was restored no ejaculation followed, and in these cases it was ascertained that the semen was passed into the bladder. Prof. Joseph considers that suprapubic prostatectomy is likely to restore the sexual power if it has not totally disappeared before operation.

Cancer Cured by Mesothorium.

Prof. Lazarus recently showed to the Berlin Medical Society a patient with cancer of the tongue cured by the administration of mesothorium. He explained that the application of the rays has three objects—to destroy the cancerous tissue, to vitalise the stroma so as to obtain fibrous encapsulation of the tumour, and to produce a protective zone by hyperæmia and cellular infiltration. The patient shown was 61 years of age and had a squamous-celled epithelioma. A 50 per cent. radiothorium was applied emitting β and γ rays. In place of the cancer, of which a photograph was shown, there was marked cicatrisation. No relapse has occurred since the treatment in 1921 and the weight of the patient has increased by 20 kg.

An Inundation Disease.

An epidemic of fever from an unknown cause has been observed in Silesia, where there have been heavy floods. The disease began with high fever, pains in the limbs, and great weakness. The symptoms usually last only for a few days, though occasionally there is a second attack. The patients were conveyed to the University Clinic of Breslau, and Prof. O. Minkowski, chief physician of the clinic; Prof. K. Prausnitz, chief of the Institute of Hygiene in the University; and the district medical officer of health, who formed a committee of investigation, state that all the patients had either slept in the wet meadows or had helped to get in the hay. The disease is carried by insects, but is not transmitted from one person to another, and certainly the floods have favoured its development.

Supervision of the Preparation of Serum.

In Chemnitz, Saxony, a child has died of septicæmia after an injection of the Degkwitz anti-measles serum, and examination of the serum showed that it contained streptococci. The serum was obtained from the Chemnitz municipal hospital, and it is now discovered that no bacteriological examination of it had been made. The Degkwitz serum is recommended for prophylaxis against measles, and school medical officers insist on its administration to prevent the spread of the disease in schools. Prof. A. Schlossmann, of Düsseldorf, draws attention to the dangers of preparing serum in hospitals and distributing it to practitioners without any official scrutiny, and considers that its preparation should be as carefully supervised as that of antidiphtheritic serum. Health authorities ought to ascertain who has prepared the serum and whether the necessary serological and bacteriological tests have been carried out properly.

Prosecution of a Medical Man.

Not long ago a patient died of heart failure whilst undergoing fat-reducing treatment, and the medical attendant was prosecuted for having caused the death by neglect. The experts gave evidence that the condition of the heart should have been known to the doctor and that he ought to have been especially cautious and should have regularly observed the progress of the case. The neglect complained of was that the doctor left town for two days without giving orders to the nurse. The defendant pleaded that the patient, against his will, had taken very hot baths in order to reduce weight rapidly, which he regarded as the principal cause of death. He was nevertheless found guilty and fined 300 marks (£15), and the family of the deceased is now in a position to bring a civic action for damages against him which is likely to cost a good deal of money.

Public Health Services.

NOTIFICATION OF PUERPERAL PYREXIA.

AN Order,[1] dated July 31st, 1926, issued by the Ministry of Health, makes important new regulations regarding the notification to the sanitary authority of fever occurring in the recently delivered woman. Puerperal fever, as it is rather loosely called, has been notifiable for the last 25 years, but, owing to the fact that the condition cannot be accurately defined since the disease is not specific in the sense that scarlatina or diphtheria are specific, notification has been incomplete, with the result that the prevalence of puerperal infection is imperfectly known and measures for its prevention and effective treatment have been abortive. To some extent, too, the term "puerperal fever" has been felt to be a slur upon the patient or her medical attendant. For these reasons the Ministry has decided to follow the advice of a representative committee, which reported in February of last year, and to make it obligatory on the accoucheur to report any febrile condition occurring in a woman within 21 days after childbirth or miscarriage in which a temperature of 100·4° F. (38° C.) or more has been sustained during a period of 24 hours or has recurred during that period. This obligation is added for the present to the existing obligation to notify puerperal fever, for although it is intended to abolish the latter term altogether, this cannot be done without legislation to amend the Act of 1899. Puerperal pyrexia, as defined above, is now to be notified irrespective of the cause to which the fever may be attributed, the importance of securing adequate treatment in the early stages of puerperal infection outweighing the objection that the new rule will result in the reporting of a number of trivial cases. The Ministry has formed the impression that pyrexia during the puerperium is not infrequently looked upon as a comparatively unimportant incident, and the circular [2] impresses upon maternity institutions the fact, since illustrated so poignantly in the Kingston case, that the presence of infection, however slight in degree in a patient or in a member of the staff, should be considered as liable to give rise to an outbreak of virulent infection and should be dealt with accordingly. Local authorities are instructed to advise all practitioners within their area of the new duty imposed upon them and to supply them with forms on which to indicate whether assistance is desired in dealing with the case. In London the notification is handed on to the Metropolitan Asylums Board which has made special arrangements in its hospitals for the treatment of cases of puerperal fever. Outside London the onus is laid on the local authorities administering maternal welfare schemes to provide facilities for diagnosis and treatment, including consultation with an obstetric specialist and the provision of skilled nursing or institutional treatment. Should the practitioner desire special assistance from the local authority the medical officer of health is to ask for information from him in regard to some or all of the following points:—

1. Conditions in the patient, if any, prior to the labour, which might have been factors in producing the pyrexia—e.g., septic foci, vaginal discharge, carious teeth, &c.
2. The names of all persons who have made internal examinations, including the name of the person who delivered the patient; their occupations and professional qualifications (if any).
3. Day and hour of commencement of labour or miscarriage.
4. The clinical course of labour or miscarriage, mentioning any special means used to assist labour—e.g., obstetrical operations or manual removal of placenta; and any injuries incurred by the patient.
5. The duration of labour and time of termination of labour or miscarriage.

[1] Statutory Rules and Orders. Public Health, England. 1926. No. 972. H.M. Stationery Office. 2*d*.
[2] Ministry of Health, Circular 722, issued to County Councils and Local Sanitary Authorities. 2*d*.

6. The clinical history subsequent to delivery, including the amount and character of lochia; copy of temperature chart, &c.
7. The time of the onset and the probable cause of pyrexia.
8. Any cases of specific fevers, erysipelas, puerperal pyrexia, or other possible forms of sepsis, visited recently by doctor or other attendant, giving dates.

The new Regulations come into operation on Oct. 1st next. The usual fee for notification will be paid.

THE HEALTH OF LONDON SCHOOL-CHILDREN IN 1925.

THE report of the school medical officer for the County of London indicates how negligence and ignorance, the bulwarks of disease, are rapidly falling to the attacks of a wider education, witness the materially lessened mortality at the ages of comparative helplessness. The enormous scope of school medical work in London can be gauged by a study of this report, prepared by Dr. F. N. K. Menzies in collaboration with Sir William Hamer, wherein is described an organisation designed to deal with roughly an eighth of the total school population in England and Wales. There are 664,890 children on the roll, with an average attendance of 580,316. The number of routine children examined during the year was 240,365, including 41,011 leavers; 235,745 special inspections and reinspections were made. The percentage of routine children requiring treatment (excluding uncleanliness and dental defects) was 42·9.

During 1925 several important developments have taken place: (1) The examination of children leaving school was reinstated, giving valued assistance in vocational guidance to all care workers and employment agencies. (2) Extension of facilities for treating dental defects and minor ailments. (3) Inauguration of two new centres for the in-patient treatment of tonsils and adenoids. (4) A new scheme for the treatment of discharging ears and the establishment of six ionisation centres. (5) Further provision for remedial exercises by the formation of 100 "health classes" for treating incipient deformities, including postural curvatures, flat feet, and defective expansion of the chest—these classes are taken by skilled instructors under the supervision of the medical officer, and reports of their activity show excellent results. (6) Increased provision for open-air education from 95 open-air classes in 1924 to 117 in 1925.

Many parts of the country have reported a fall in the nutritional state of the children during the past year; the nutrition of the London entrants has not so far shown any falling away. Dr. C. J. Thomas, in his detailed analysis of the work, gives his reasons for stating that there has been a real increase in the number of children suffering from enlarged tonsils and adenoids and their sequelæ, which he attributes to the effect of climatic conditions and the prevalence of infectious complaints. There has been a steady increase in the percentage of children leaving school whose teeth are noted as satisfactory. There has also been a definite increase of 6 to 7 per cent. of the number of entrants found to have perfect teeth. There is a steady decline in the number of children leaving school with defective vision—the Council's regulations now prohibit the teaching of needlework by artificial light, unless in exceptional circumstances. The all-round improvement in the general condition of the leaving child is a tribute to the care and training given during the period of school life.

Dr. F. C. Shrubsall gives an analysis of the after-effects of encephalitis lethargica in the different age-groups, showing the higher incidence of mental changes in the child. An excellent map shows that the distribution of encephalitis in London during 1924–25 followed the density of population. Dr. Elizabeth McVail has made a careful investigation of educational retardation in 69 girls in backward classes. The proportion of these children with physical defects was much higher than amongst normal children; 16 per cent. had defective vision, the same proportion had defective hearing. The effects of disabilities persisted long after these had been cured or mitigated, in particular a child who has been unable to hear gets into a habit of not troubling to listen. Many children in all the groups evidently owed their school backwardness to loss of attendance due to illness or unfavourable home conditions. The children in these classes are not merely behind their fellows but are so badly lacking in education that they would be severely handicapped in employment. Intensive methods of education would do them little, if any, good, and Dr. McVail sets out the necessity for small classes under close medical supervision.

That the full functioning of the mind, whatever the level of intelligence may be, is largely dependent on the well functioning of the body is increasingly brought out in many researches along different lines. Dr. J. Nairn Dobbie, working in conjunction with the staff of the National Institute of Industrial Psychology on the subject of vocational guidance, records the physique and general condition of 237 boys and girls of 14 years, and indicates how brightness and high spirits go hand-in-hand with robust health and good nutrition. The physical contra-indications for special occupations were considered; 49 boys out of 128 showed 103 contra-indications between them, and 40 girls out of 109 showed together 80 contra-indications.

Dr. R. H. Norman has investigated the frequency of albuminuria in 1787 school-boys, and found it present in 23·1 per cent. at all ages between 7 and 15 years—the incidence rising from 10 per cent. at the lower age to 40 per cent. at 15 years—re-examination was carried out a few weeks later and in the majority of the cases it was still present, the persistence being greatest in the elder boys.

Dr. Mabel Russell gives an account of the social and physical condition of children living in canal barges, and finds that the physique and general health of these children is better than that of town children, though in hygiene and education they are far below the town standards.

Dr. Letitia Fairfield, in analysing 650 cases of illness among school-teachers, states that prevention and treatment of functional nervous disorders are on a less satisfactory basis than is the case in purely physical disorders, and that the severity of the breakdown is in inverse ratio to the gravity of the alleged causes.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the statistics of the cities of Glasgow and Birmingham for 1925. The density of population per acre is nearly three times greater in Glasgow than in Birmingham (the ratio is 57 : 21), but the number of persons per house is less in Glasgow—namely, 4·60 as compared with 4·83.

Name of city.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.	
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Infant mortality.	Maternal mort. from childbirth.
Glasgow ..	1,057,100	24·0	14·5	1·33	1·31	2·8	1·4	102	7·2
Birmingham	945,900	18·8	11·7	1·14	1·27	2·4	1·4	78	4·1

Glasgow.

This is Dr. A. S. M. MacGregor's first report, and during the first half of the year his predecessor, Dr. A. K. Chalmers, was still in office. He briefly describes the growth of the city. During last century it grew beyond its boundaries at a greater rate than within them. After the extension of 1891 rapid building took

place within the enlarged area. From 1901–11 there was a decline of house building in the city and the empty houses numbered 20,000, whilst growth increased outside. From 1911 onwards the decline in house building was marked and empty houses —good, bad, and indifferent—became re-occupied. Building practically ceased in 1917 and since then it has been resumed much too slowly to meet the demand. The outside growth now taking place is of no service to the large population most in need of accommodation.

Variations which occur in ward populations are due to corporation housing schemes on the one hand and a clearance of slum areas on the other. The unoccupied houses, of which there were 18,710 in 1913, numbered 366 in 1925 and 449 in 1924. In last year's report it was estimated that 5000 houses annually for the next 20 years would be needed to meet the shortage; in 1925 only 1394 were provided. Back-lands are being gradually cleared. During last year the number of back-land tenements had been reduced to 450, and of these 50 are to be included in a clearance scheme. The houses most needed are those of moderate size, and no houses of less than three rooms are being built under subsidy schemes. In the present report is included a monograph by the late Dr. Alexander Maclean on the height and orientation of buildings in relation to sunshine, wherein it is recognised that at the latitude of Glasgow the streets have to be wider or the buildings lower than in London if they are to get the same benefit from sunshine. Proximity to place of employment is not so necessary in Glasgow, and in the interests of the children a low density with access to open spaces should be preferred to the erection of high buildings near the place of work.

The new life-tables for Glasgow show that the expectation of life for males up to the age of 42 is slightly better than in Liverpool and Manchester, but after that age it is worse. The expectation of life for females is better in Liverpool and Manchester. At birth the expectation in Glasgow is 48·41 years for males and 52·22 for females; at the age of 10 it is 50·81 for males and 53·19 for females.

Several new maternity and child welfare centres have been recently completed or are under construction; the report has illustrations of them. At four of the centres arrangements have been made for the diagnosis and treatment of venereal diseases. A special nurse has been appointed to follow up women and children whose attendances have lapsed, and her efforts have met with considerable success. Dr. Chalmers Smith reports on the light treatment in use at Cochrane-street. The cases treated have been children under 5 years of age suffering from rickets, malnutrition, and debility, and the success attained is likely to lead to a further extension of the work. At the maternity hospital a course of lectures and demonstrations has been given to midwives and will be repeated. At the instance of the Scottish Board of Health two aural surgeons have been appointed to treat the children in the isolation hospitals who contract otitis media as the result of scarlet fever or other diseases. In 1925, 3878 women attended the antenatal centres, as compared with 2957 in 1924. Midwives sent for medical help in 22 per cent. of their cases. A chart shows that the case rate for ophthalmia neonatorum per 1000 births was about 6 before the war, rose to 10 in 1917, and 10½ in 1919, since which it has rapidly declined. Since 1914 a total of 168 of the survivors have shown some degree of impaired vision, but during the last three years only 18 have suffered in this way. During 1925 there were 32 gonococcal cases, all of which recovered without impairment of vision, whilst of the 354 non-gonococcal cases two lost the sight of one eye and one had slightly impaired vision. During the last five years the average death-rate from puerperal fever per 1000 births has been 2·6. The number of cases notified last year was nearly five times greater than the number of deaths, which shows that notification is being better carried out. Of 500 consecutive cases admitted to Belvidere Hospital between April, 1923, and November, 1925, 96, or 19·2 per cent., died; in many of the fatal cases death was due to general peritonitis.

Two small outbreaks of scarlet fever were traced to the milk-supply. In each of them the infection was apparently due to missed cases which had developed otorrhœa. Since encephalitis lethargica became notifiable there have been 683 cases with 174 deaths. It is estimated that of the survivors about 200 are definitely disabled, some 25 per cent. of whom have symptoms of Parkinsonian type. Further observations have been made on the mosquitoes of the district. Six species have been identified, including only one of the anopheline type—viz., *Anopheles biturcatus*. Deaths due to mosquito bites are attributed by Dr. W. C. Gunn to septic poisoning arising from scratching. He finds that a solution of camphor and menthol in absolute alcohol is an efficient remedy to apply to the bite. It was noted that the fogs, accompanied by a low temperature, in the latter half of November caused considerable increase in the respiratory death-rate among older people but did not apparently affect children. Dr. Fergus L. Henderson reports on the use of X rays in the diagnosis of tuberculosis. He thinks that radiologists tend to diagnose hilum tuberculosis or peri-bronchial tuberculosis on insufficient evidence, but regards X rays as of considerable value and dissents from the opinion of one leading lung specialist that no radiologist should say that a chest is normal. During the last six years very few cases classed as negative have returned later as tuberculous. X rays are useful in the treatment of gland tuberculosis, but tuberculosis of the skin is better treated by ultra-violet radiation. Artificial light treatment has been in operation at Robroyston Sanatorium during the whole of 1925. One hundred and two patients of various types were treated, including ten carefully selected pulmonary cases. Dr. Alexander Smith concludes that artificial sunlight therapy is undoubtedly of great value for surgical tuberculosis, but is by no means infallible. For pulmonary disease its usefulness has yet to be proved. If used as a tonic and prophylactic for debilitated children, particularly those who have been in contact with tuberculosis, it would, he thinks, be almost invaluable.

The smoke inspector claims that 1925 will be notable for the first practical step taken by the corporation to produce a solid smokeless fuel suitable for domestic purposes. It has been named Kincole. It is said that it lights easily with paper and wood, gives out more radiant heat than the same weight of coal, and might well be substituted for coal in all domestic fires.

Birmingham.

Sir John Robertson reminds us that 1925 was the jubilee year of public health effort. During 50 years the birth-rate, death-rate, and infant mortality-rate in Birmingham have been halved; small-pox and enteric fever have practically disappeared; scarlet fever has gone far towards disappearing also, and the prevalence of all the other so-called zymotic diseases has been enormously diminished. A statement gives some idea of what happens to illegitimate babies. Of 624 reported on in 1925 87 still remained in infirmaries and similar places, 51 died before the first visit was paid, and 86 removed. In 156 cases the father and mother were living together. In 48 the father was making an allowance under order; in 56 he was making a voluntary allowance; and in 106 cases he was not contributing towards upkeep at all. Investigation of the results of operation for cancer of the breast showed that early and complete operations were much more successful than the surgeons were aware of. Steps were taken to bring their success to the notice of the public by the house-to-house distribution of leaflets.

Birmingham has several sources of water-supply. The Welsh gathering ground is only used up to about a quarter of its full capacity. The rivers Bourne and Blythe are not a very desirable source; both streams

flow through an agricultural district, and the water is chlorinated before use. The third supply, from three deep wells sunk in the Bunter Beds, is only brought into use when needed. The area over these wells is becoming populated and the water from Aston well is now chlorinated. Individual houses in the rural area are supplied by shallow wells. In the majority of courtyard houses there is no water-supply inside the house, the service being by a standpipe in the yard. The river Tame receives drainage from other towns and villages outside the city; it is grossly polluted and complaints of smell are common during the summer months. A recent conference of the authorities concerned is already producing results. The flooding of the Hockley Brook in 1925 caused considerable alarm and nuisance. Work to prevent the flooding is in progress and expected to be complete in 1926. Efforts are being made, where practicable, to secure one water-closet for each house in the case of courtyard houses.

The Gas and Electric Supply Committees are backing up the work of the public health department in striving for a purer atmosphere; there are 83,000 gas fires and 185,000 gas cookers in use. Eighty-six convictions were obtained against factory chimneys for emitting black smoke, but the average fine was only £2 2*s*. 9*d*. The use of coal-dust and inferior slack has led to a grit nuisance. In the local Act of 1922 powers were obtained to deal with chimneys emitting grit and several firms have had to alter their plant. The unaided eye cannot see the grit coming out of the chimney, but it has been found possible to trace the offending chimneys by observing the direction of the wind and putting down papers smeared with a slow-drying varnish. The use of a field-glass or telescope has also been found helpful.

Birmingham does better than most towns in the building of new houses; 4840 were erected in 1925, 3066 by the corporation and 1774 by private enterprise. During the last six years 13,099 houses have been put up, 8516 by the corporation and 4583 by private enterprise. Three-quarters of these have been erected in the healthier suburban wards. There is still much overcrowding, and in order to discover its extent, information was sought at about 500 houses in each of two representative areas. In the poorest area 25 per cent. of the houses were found to be overcrowded; in the artisan area only 2 per cent. The definition of overcrowding was "more than four persons per bedroom" or "persons of opposite sexes over the ages of 13 in the same bedroom." Some of the bedrooms are very small so that the standard adopted was obviously a low one. Examples are given of some of the worst cases of overcrowding. There is a great need for decent small furnished houses, and as an experiment two-roomed houses are to be erected and let furnished to small families until the housing shortage is less, when two of these small houses may be combined into a good four-roomed cottage.

Dr. E. H. R. Harries is convinced, after more than five years' experience, of the value of the Schick test and immunisation for the protection of the staff of the hospitals against diphtheria. Up to the end of the year the method had been extended to three large institutions for children, and it is hoped next year to give a fuller account of work on both diphtheria and scarlet fever immunisation. Dr. C. G. Dixon has had encouraging results from the artificial light treatment of various forms of tuberculosis at Yardley Road Sanatorium. Dr. Ethel Cassie gives an interesting account of the work of the Carnegie Infant Welfare Institute. The clinics for treatment by light and by massage and remedial exercise have done good work, and the breast feeding clinic has given striking results in the restoration of lactation. Lactic acid milk has proved valuable for cases of marasmus and chronic enteritis.[1] The damage to eyesight from ophthalmia neonatorum during 1925 was unusually severe. Two babies, one born in hospital and the second under the charge of doctor and midwife, were left totally blind. In a third, born in a maternity hospital, both eyes were left very defective, a fourth, born in a general hospital, had slight defect of the left eye, and the fifth, also born in hospital, had the right eye slightly scarred. The five cases came under treatment of the eye hospital after varying intervals—namely, three months, 23 days, 10 days, one month, and 18 days respectively.

Efforts to eliminate tubercle bacilli from milk are referred to on page 398 of this issue.

[1] THE LANCET, August 14th, p. 322.

TYPHUS FEVER IN GLASGOW.

As we reported last week, there has been a small outbreak of typhus fever in Glasgow. By courtesy of the divisional medical officer of health we are able to give the following particulars.

On the evening of July 30th a case of suspected typhus fever was admitted to Belvidere Hospital. Later in the same evening the home of this patient was visited, and two younger children of the family were found to be "febrile and out of sorts." A married daughter of the family, residing at a house some distance away, was also confined to bed with the same symptoms. These three patients were immediately removed to hospital.

The blood of the original patient gave a positive Weil-Felix reaction, and all contacts from both infected houses were removed to a reception house for observation. On the afternoon of July 31st one of these contacts, who had developed a temperature of 100° F., was also removed to hospital. On August 1st a sister of the original case—a resident maid in a local hospital—was reported to have developed a temperature of 104°, and she also was admitted for observation to Belvidere Hospital. On the following day another contact who had become febrile was removed from the reception house to hospital for observation. Within a few days of admission to hospital all the contacts showed definite evidence of typhus fever. On August 10th another case of typhus fever was admitted to Belvidere Hospital. This last patient was a contact with the original case.

Inquiry into the history of previous illnesses in the infected households revealed that the father of the first seven cases had died on July 16th from an illness whose nature was somewhat obscure. His movements were difficult to determine, and it was thus impossible to trace any source of infection. The mother of the family had also suffered from an indefinite illness lasting eight days, but had recovered. A Weil-Felix blood reaction was in her case negative; this test was performed six weeks after the onset of the illness.

The precautions adopted by the public health authorities were as follows:—

1. Removal of direct contacts to a reception house for observation.
2. Daily medical inspection of these contacts, and removal to hospital of any who had developed febrile symptoms. The temperature was taken morning and evening as a routine measure.
3. Disinfestation, cleansing, and closure of the infected houses.
4. Daily visitation of indirect contacts in various parts of the same district.
5. House-to-house visitation of all houses in the near vicinity.
6. The illness of the father was regarded as typhus fever administratively, and all contacts with him in the institution where he died were treated as contacts with the disease.
7. As the original case had been admitted to a general hospital in the first instance, the ward of that institution was closed for the admission of new cases, the nurses and patients of that ward were kept under observation, and extensive disinfection was performed. In addition, the ambulance by which the patient was conveyed to the general hospital was disinfected, and both the driver and the attendant treated as typhus contacts.
8. One of the later cases of typhus fever was a maid in a local institution. All the direct contacts with this patient were removed to the reception house for observation. The dormitory in which she slept was closed after extensive disinfection and disinfestation had been carried out.

Correspondence.

"Audi alteram partem."

HOSPITAL COMMITTEE VISITORS.

To the Editor of THE LANCET.

SIR,—The position of members of hospital committees, to whom the duty of visiting the hospital on behalf of the committee is delegated, is too vague. I can quite understand that the responsibility must vary to some extent with every institution, that each committee might expect something particular from the visitor, and that each visitor might have his individual interpretation of what was wanted. None the less, I think that if hospital visitors could have a general definition of what is required from them, so that they may be useful in reporting to their committees on the conduct of the institutions, they would be usefully served.

Want of knowledge as to what is expected of a visitor is a stumbling-block to efficient inspection. The visitor is nervous on the one hand lest he should be officious, and on the other lest he should fall short of what is required, while he has no *definite* place in hospital organisation. Yet he occupies, or should do so, a place as a definite link between the outside public, as representing a lay committee, and the internal administration of the institution, its medical administrative and nursing services. If his work is to be of practical value he should be expected to ask pertinent questions of the secretary or the matron, and if those questions concerned any of the minor officials or nursing staff he ought not to be considered to be exceeding his position. To demand explanations of detail requires tact, but tact should not go so far as to obscure truth.

The hospital visitor should know what to observe and to whom he has a right to report needs or omissions, if only that he may obtain explanations, for these might show that the circumstances were not unknown, but that the remedy was not easy to find. It would be the visitor's duty to collaborate with the hospital officials to discover the remedy. Would it not be possible to suggest the kind of entries that should be made in a visitor's book, so that a record could be kept for the information of the hospital committee as to what the visitor thought required consideration and as to what the hospital officials had to say on the matter? In this way the committee would be informed whether the hospital official responsible in some concrete matter was the matron or the secretary, for at the present time hospital committees must often be in doubt of the particular origin in the administration of the institution of some default brought to their notice from outside. As far as I know the relations of the hospital visitor to the secretary, to the matron, and even to his own committee in session are quite vague.

A hospital visitor should have a *defined position*, so that he may not fall short of his duties, but particularly so that he should not incur the disagreeable reputation of exceeding them. It should be understood that he is on the look-out to suggest improvements in equipment, whether they be merely to raise the standard of comfort or be gravely concerned with provision for dying patients. The amenities of the nurses' home and the administration of the kitchen are matters with which every visitor ought to be familiar. He can only be so if he has a position giving him the right to ask questions. He can only learn to ask the right questions by the consideration of the replies, and he will only receive useful and detailed replies if it is recognised that he has a right to ask the questions.

I am sure that this matter is well worth the attention of hospital committees and hospital medical administrative and nursing services.

I am, Sir, yours faithfully,

August 11th, 1926. A VISITOR.

SPRUE AND ADDISONIAN ANÆMIA.

To the Editor of THE LANCET.

SIR,—In the very interesting and timely article by Dr. Manson-Bahr and others in your issue of August 7th there occurs the remark "In Addisonian anæmia, the anæmia is due to disease of the blood-forming organs so that recovery is not dependent on the processes of digestion and assimilation; the glossitis and gastro-intestinal symptoms appear to be secondary to, or to follow on, the primary anæmia." This is a very old view which is, I imagine, generally abandoned to-day in favour of Hunter's theory of hæmolysis in the portal area as the primary factor. It is certainly difficult to suppose that the glossitis is due to disease of the bone-marrow.

But I only stress this point at the moment in order that the appropriate treatment of both conditions may not be hindered by unproven ætiological theories. From the hæmatologist's point of view there is present in both cases an anæmia of hæmolytic type—in other words, hæmolysis is so active that hæmogenesis even when working to the limit (quick work is bad work as we see in the blood) cannot overtake the loss. The treatment of this condition usually includes the giving of arsenic. If this has some direct action on hæmolysis it will be as valuable in sprue as in Addisonian anæmia. If it only acts in some indirect manner—e.g., by inhibiting the growth of organisms in the alimentary canal or by neutralising their toxins—it may still be of use in both cases. One is therefore surprised to read concerning arsenic, that "all observers agree upon its harmful effects." I have at the moment under my care a case of sprue in which arsenic seems to be of undoubted value. I had another case in which the patient swallowed six days' allowance (54 minims of Fowler's solution) in one day, and it did him so much good that he forthwith returned for more. A week or two back I met an eminent specialist in tropical diseases in consultation over a case of severe sprue-anæmia, and he ordered iron and arsenic with no small emphasis. The patient highly approves of the results.

Even in Addisonian anæmia, it is possible to give arsenic with so little care that bad results follow; sometimes it is very difficult to avoid bad results, and at others the attacks of gastritis which often appear in this disease are attributed to arsenic. But these facts do not outweigh the undoubted benefit in other cases. Is it possible that in sprue also arsenic might find a place? The close resemblance between the diseases certainly suggests a careful trial. If this has already taken place, I should be glad of any reference to an account of it.

Might I also mention that long before the modern lamps were available I was accustomed to use what sunlight Nature provided in the treatment of anæmia and with excellent results. This therapeutic weapon has been somewhat discredited of late by the works of unbalanced enthusiasts, but the sprue-anæmia would probably benefit as much as any other.

I am, Sir, yours faithfully,

Sevenoaks, Kent, August 12th, 1926. GORDON WARD.

PASTEURISATION OF MILK.

To the Editor of THE LANCET.

SIR,—Your readers will be in close agreement with your correspondent, Mr. T. McLachlan, when he states that whenever pasteurised milk is sold to the public the purchaser should be informed of the fact. This is the present practice of the leading London firms of distributors, in so far as bottled pasteurised milk is concerned. For instance, every bottle of milk distributed by the dairies controlled by United Dairies, Limited, has the word "pasteurised" printed on the cap of the bottle. It is obviously impossible to label the milk which is distributed in cans—a rapidly decreasing quantity. There is no trade desire to hide the fact of pasteurisation, for it is recognised that in large towns deriving milk from long distances such pasteurisation is greatly in the public interest; for it ensures that the

same milk which would otherwise be sold as raw milk is thereby made safe and its keeping power (mainly taxed in the home) is much improved. Your correspondent refers to a manager of a company who is selling pasteurised milk as "Grade A" milk. This would not be possible if the local authority was doing its duty. The rogue in question is running the daily risk of heavy penalties, and the local authority should be put upon his track.

As to Mr. McLachlan's alleged disadvantages of pasteurised milk, I am unable to accept any one of them. Pasteurised milk, he states, "may go bad without curdling if kept for any length of time." Surely no one can dispute that there are lactic acid producing organisms which survive pasteurisation at 145° F. for 30 minutes, and therefore such pasteurised milk always sours before it decomposes. Furthermore, he states that reductase is destroyed by such pasteurisation. I dissent; but supposing that it is so, what is the disadvantage? The ferments found in cows' milk mostly gain access in contamination; and those present in uncontaminated milk do not appear to be of value from the standpoints of either digestion or nutrition. The chief enzymes are destroyed, in 30 minutes, at about 158°; and it is probable that at 145° the activity of some may be even slightly promoted.

As to the suggestion that pasteurised milk is less digestible than raw milk, I would suggest to your correspondent that he extends his work and research on this matter before he makes up his mind upon it.

I am, Sir, yours faithfully,

London, August 14th, 1926. HENRY KENWOOD.

THE FERTILITY OF THE TUBERCULOUS.

To the Editor of THE LANCET.

SIR,—In his recent book, "The Need for Eugenic Reform," Major Leonard Darwin concludes a section on the eugenics of tuberculosis with the following sentence: "Many of these questions are still in doubt, but there can be no doubt that a diminution in the fertility of all tubercular patients would be a blessing to mankind." If this is true it is of evil omen that the fertility of the tuberculous should be, as has recently been shown, somewhat above the normal. But is it true? Major Darwin's argument leading to this conclusion is based on two suppositions: that heredity is a very important, almost a dominant, factor in the determination of clinical tuberculosis, and that if this is not the case it must alternatively be assumed that the child of tuberculous parents is excessively liable to become a tuberculous patient by infection.

It is the former reason which weighs with himself. "The most striking fact," he writes, "telling in favour of the power of the hereditary factor is that a higher rate of incidence of this disease generally occurs amongst the children of tuberculous men as compared with that obtaining amongst their wives; for if this fact is to be explained by infection, it means that a man is more likely to infect his child than his wife, a very improbable conclusion."

The possibility—indeed, in view of Krause's work on the lymphatics of the child's as compared with the adult's lung, we may say the great probability—that the same human being has less resistance as a child than as an adult has not been taken into account, Another error, all too common among eugenists, into which this most distinguished eugenist has fallen, is to assume that natural immunity is the only factor which determines whether or no an infected subject shall become a clinical case. The influence of unusual physical strain, of the quantity of the infecting dose, of the frequency of its repetition—such considerations as these are altogether overlooked. We do not have to believe in the inheritance of acquired characteristics to believe that an individual who has successfully combated clinical tuberculosis may be an unusually good stock from which to breed resistant progeny. In the case of tuberculous women there is, of course, a special reason why childbirth is to be feared, but that is altogether aside from the present discussion. It is reasonable to assume, and there is some statistical evidence to support the assumption, that on the whole those patients endowed with low natural immunity die before the consummation of marriage, while those who survive to have children leave to society a legacy of good stock in this particular respect.

And that brings out another weakness of the eugenist's case. Are we to think of tuberculosis resistance as the overwhelmingly important factor in breeding? Man is a complex animal, and it is conceivable, is it not, that there are some individual cases where the genes of the parents contain elements of such solid worth in mental and physical traits that an extra risk of their offspring getting tuberculosis might be worth the taking? As for the argument that the child should be spared the risk of infection from its father, we know first that parental infection, when it does occur, is most often from the mother, that the risk of fatal infection is only slightly greater among children of tuberculous parents than among the general population, and that a well-educated consumptive is a safer person to live with than the many unrecognised carriers of infection who do not know of their complaint. I am, Sir, yours faithfully,

August 1st, 1926. T.B.M.D.

The Services.

HONORARY SURGEONS TO THE KING.

His Majesty has approved of the appointment of the following to be Honorary Surgeons to the King: Maj.-Gen. H. P. W. Barrow, C.M.G., late R.A.M.C., in succession to Maj.-Gen. C. E. Pollock, late R.A.M.C. (retired); and Maj.-Gen. D. Harvey, C.M.G., late R.A.M.C., in succession to Maj.-Gen. J. R. McMunn, C.B., C.M.G., late R.A.M.C. (retired).

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs. to be Surg. Comdrs.: A. C. Shaw, R. A. Brown, and A. C. V. Green.

The following appointments are notified:—Surg. Lt.-Comdrs.: R. Lyon to R.N. Hospl., S. Queensferry; L. R. Warburton to R.N. Hospl., Haslar; J. F. Ainley to the *Excellent*; J. R. Brennan to the *Durban*; and E. S. Mellor to the *Yarmouth* for trooping trip. Surg. Lts. C. Godfrey to the *Ark Royal* and A. H. Harkins to the *Broke*.

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: D. C. G. Ballingall, H. G. Winter, N. Cantlie, E. A. P. Brock (Prov.), E. Phillips, S. D. Reid, P. J. Ryan, and Bt. Maj. E. A. Sutton.

ARMY DENTAL CORPS.

Lt.-Col. J. P. Helliwell to be Col. to complete estabt.

ARMY RESERVE OF OFFICERS.

Lt.-Col. W. A. Woodside, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Maj. W. H. P. Hey resigns his commn. and retains his rank with permission to wear the prescribed uniform.

Lt. E. R. Woodroofe to be Capt. (Prov.).

Lt. C. C. P. Anning is secd. under para. 137, T.A. Regns.

W. H. M. Jones and J. W. Murdoch to be Lts.

ROYAL AIR FORCE.

Flying Officer R. S. MacLatchy is transferred to the Reserve, Class D.2.

BRITISH DENTAL HOSPITAL.—The annual report shows that the work of the hospital in providing dental treatment and advice to expectant and nursing mothers and their young children through the medium of clinics established in conjunction with local authorities, has been maintained at a high level. A dental clinic for maternity, child welfare, and tuberculosis patients is about to be opened in Stepney; at the Lewisham School Dental Treatment Centre 3049 patients were treated during 1925.

Obituary.

ROBERT HENRY COLE, M.D., F.R.C.P. LOND.

THE death of Dr. R. H. Cole, which we recorded last week, removes a much respected authority on mental disease from the ranks of London consulting physicians.

Robert Henry Cole was the eldest son of the late Mr. R. C. Cole, of Ealing, and was born in 1866. He was destined for the Civil Service, and for a short time worked as a clerk in the India Office. He qualified in medicine, nevertheless, at the age of 23, and after holding a house appointment at St. Mary's Hospital, took up the special study of psychiatry to which the rest of his life was devoted. Thirty-six years of association with Moorcroft House began with his appointment as resident physician soon after leaving St. Mary's, and in the years during which he held this post he won a high reputation for clinical skill and for the helpful care which he bestowed on his patients. He always made remarkably good use of his time; he read a great deal and he was keenly interested in his specialty. In 1907 he began to engage exclusively in consulting practice, and soon afterwards was appointed physician for mental diseases to St. Mary's Hospital and lecturer in the medical school. He later became an examiner in mental diseases and psychology in the University of London, and held several other appointments, including those of Home Office Visitor to the State Inebriate Reformatory at Aylesbury, visitor to the approved institutions for the mentally defective in Middlesex, and lecturer in mental diseases at Bethlem Royal Hospital. His considerable experience is embodied in the well-known text-book on mental diseases which he wrote—now in its third edition—whilst his knowledge of, and sympathy with,modern views on psychology and treatment were shown in his presidential address to the Section of Psychiatry of the Royal Society of Medicine recently published in our columns.[1] This thoughtful comment on the progress of the last 30 or 40 years is evidence of a wide outlook, and is written in his characteristic style.

For the Royal Medico-Psychological Association Dr. Cole did a great deal of painstaking work. At the time of his death he was chairman of the Parliamentary Committee of the Association, in which office his acquaintance with the legal relations of insanity were very valuable. Intimate knowledge of the history of lunacy legislation enabled him to offer wise counsel, and the Association owes a great deal to him. "His place," writes one of his colleagues, "will be hard to fill. Those who knew him will miss his genial and kindly presence. Unchanging loyalty was the most striking feature of his friendship. He always gave unsparingly of his best, and was accustomed to take immense pains with his patients, on whose behalf he laboured without counting the cost in time and trouble. And his younger colleagues would seek his advice constantly, knowing that he would appreciate their problems and help them in every possible way."

Dr. Cole leaves a widow, a son, and a daughter.

JOHN FRANCIS HALL-EDWARDS, L.R.C.P. EDIN., D.M.R.E. CAMB., F.R.S. EDIN.

Dr. J. F. Hall-Edwards, who died at Edgbaston on August 15th, was one of the first medical men in this country to use X rays, and like many others who have worked with unknown materials for the advancement of knowledge, he had to pay heavily for an adventure which has benefited other people. In the first few years of this century he contracted dermatitis by exposure to X rays, but his courage and enthusiasm were such that in spite of increasing disability he carried on with his work until recently.

The son of Dr. John Edwards, of Sparkbrook, John Hall-Edwards was born in 1858 and was educated at King Edward's School and at Queen's College, Birmingham, where he acted as assistant demonstrator in physiology for two years. At the age of 27 he took the diploma of L.R.C.P. Edin., and settled in practice at Moseley. His hobby was photography, and he soon became a leading light in the local photographic societies, publishing papers on microphotography and kindred subjects. When, in 1896, Rontgen published his discovery of X rays, Hall-Edwards brought a well-prepared mind to the study of their application to medicine and surgery. He was soon writing articles on their use, and in 1889 was appointed surgeon-radiographer to the General Hospital and other Birmingham institutions. In the following year he went out to South Africa and successfully organised a radiological service for the Imperial Yeomanry Hospitals at Deelfontein and Pretoria. At this time, unfortunately, no precautions were taken against X ray burns, and Hall-Edwards began to suffer from their effects soon after his return. The dermatitis was progressive and after six years of suffering he had his left arm amputated; later he lost four fingers of the right hand as well. In 1908 his sacrifices in the furtherance of radiology were recognised by the grant of a Civil List pension.

The outbreak of the late war found Hall-Edwards ready and anxious for further service, and he did good work as radiologist to the 1st and 2nd Birmingham War Hospitals and the Monyhull Military Hospital; he held a temporary commission as Major in the Royal Army Medical Corps and was twice mentioned. At the end of the war he continued to practise as radiologist in Birmingham and even took the diploma of radiological medicine at the University of Cambridge in 1920. Two years later the Carnegie Hero Trust medallion was awarded to him,and in the present year he was elected an honorary member of the British Medical Association. He was also at one time President of the British Electro-therapeutic Society, and editor of *Archives of the Rontgen Ray*. Enthusiasm for his work, however, did not make him a man of one idea. After the war he served usefully on the corporation of the city of Birmingham and was a member of the Art Gallery Committee. Originally he had intended to be an artist himself, and during the last few years he took up painting again, holding the brushes between the thumb of his right hand and an artificial finger. Some of his work was shown at the exhibition by medical men at the Royal Society of Medicine in 1924.

JOHN RUSSELL, O.B.E., M.B. ABERD.

Dr. John Russell, who died on August 10th at the age of 64, was for many years one of the best-known medical men in the Potteries; he practised in Burslem until last year, when he retired to Grantown-on-Spey. Born at Insch in Aberdeenshire, he was educated at the University of Aberdeen, where he graduated in arts in 1883 and in medicine three years later. He also studied in Dublin. Forty years ago he went to Burslem and soon established a large private practice and entered upon many public appointments. At the time of his death he was consulting physician to the North Staffordshire (now the Royal) Infirmary and to the Haywood Hospital, Burslem, and for many years he was public vaccinator, police surgeon, and medical officer of health for the Burslem district. Several pottery manufacturers appointed him their adviser on industrial diseases. He was at one time President of the North Staffordshire Medical Society and of the Staffordshire branch of the British Medical Association, and as assistant county director of the British Red Cross Society did good work during the war in connexion with convoys of wounded to the local hospitals. For this and other public services he was made an officer of the Order of the British Empire. Dr. Russell's life in Burslem was full of interests. For some time he was a captain in the Volunteers; he was keen on every kind of sport, and was a popular member of local clubs and societies. He read extensively, had a good library, and an

[1] THE LANCET, July 24th, p. 166.

excellent collection of etchings and prints; the Ceramic Art Society and similar organisations gained much by his support. For many years he enjoyed the friendship of Mr. Arnold Bennett, and is said to have been the original of the Dr. Stirling, of Bleakridge, who figures in that author's novels of the Five Towns.

Medical News.

FINAL F.R.C.S. ENG. EXAMINATION.—Courses of instruction for the Final Examination for the Fellowship of the Royal College of Surgeons of England will commence on Wednesday, Sept. 1st, at Guy's Hospital Medical School and at the London Hospital Medical College. The fee in either case is 20 guineas, operative surgery 5 guineas extra. Further particulars in our advertisement columns.

UNIVERSITY OF SYDNEY: CHAIR OF PSYCHIATRY.—The Senate invites applications for the Chair of Psychiatry, of which we publish particulars in our advertisement columns. The professor will be expected to enter on his duties on March 1st, 1927, and applications from the United Kingdom should be sent in proper form to the Agent-General for New South Wales before Sept. 15th. Applicants, it is stated, should have been trained in a mental hospital, and should be interested primarily in clinical rather than pathological work.

NATIONAL INSTITUTE FOR THE BLIND.—The voluminous and well-illustrated report for the year ended March 31st, 1926, is a record of steady constructive progress. It is, in fact, a small encyclopædia dealing with all aspects of the blind community. The report has been compiled on new lines. The first part is an account of the actual work accomplished during the year, including details of the Institute's endeavour to link up national and local work and of the scheme now adopted, with the approval of the Ministry of Health, to ensure that the distinctions "national" and "local" shall indicate relationship and not rivalry. The second part is divided into sections each illustrative of some phase of work for the blind.

HOSPITAL TREATMENT OF ENCEPHALITIS SEQUELS IN SCOTLAND.—Encephalitis lethargica has been notifiable in Scotland since December of last year, and the disease in its acute stage has been dealt with in the hospitals provided for the treatment of infectious disease in general. The subsequent care of bedrid patients who still require special treatment and nursing is providing a difficult problem. The Parish Council of Glasgow has now allotted 40 to 50 beds to these cases in a separate block of the Stobhill Hospital with a daily charge of 7*s*. provisionally fixed. Less suitable cases will be gradually eliminated so as to leave only those who urgently require the benefits of institutional care. At the hospital the services of a mental specialist and of the council's pathologist will be available.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, August 23rd, Queen Mary's Hospital will begin a two weeks' intensive course in medicine, surgery, and the specialties; this will include operations, lectures, and demonstrations in all departments of the hospital, which will be thrown open for the whole of each day. There is a well-equipped pathological department and new maternity wards. Every week the City of London Maternity Hospital holds a special course in obstetrics, instruction being given during the whole day. Personal application for this course must be made to the Secretary of the Fellowship. During September arrangements will be as follows: An intensive course covering all branches of medicine, surgery, and the specialties will be given at Westminster Hospital during the whole of each day from Sept. 20th to Oct. 2nd. On Sept. 13th the Infants Hospital will begin a course in the diseases of infants, lasting for two weeks; there will be lectures and demonstrations each afternoon and a visit has been arranged to Thavies Inn V.D. Centre on the Sunday. At the Royal Free Hospital Dr. C. B. Heald will give four lecture-demonstrations in treatment by electrotherapy on Wednesday, Sept. 22nd, and the three succeeding Wednesdays, at 5.15 P.M. A course will be given at the Central London Ophthalmic Hospital from Sept. 6th to Oct. 2nd, instruction being given every afternoon. The Bethlem Royal Hospital staff will hold a series of lecture-demonstrations on Tuesdays and Saturdays at 11 A.M. from Sept. 2nd to Oct. 2nd. An all-day course in orthopædics will be held at the Royal National Orthopædic Hospital from Sept. 20th to Oct. 2nd, covering all branches of the subject. Copies of all syllabuses, of the General Course programme, and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Major Henry Edward Sutherland Richards, Chief Medical and Health Officer, has been appointed a member of the Executive Council of the Island of Grenada.

THE address of the Panel Committee for the County of London is now 17–18, Russell-square, W.C. 1. Telephone number: Museum 9912.

Dr. J. B. Hurry, the founder of the Michael Foster studentship in physiology at the University of Cambridge, has increased its endowment by £100.

Dr. L. J. Witts, of the University of Manchester, has been elected to the John Lucas Walker studentship in pathology at Cambridge for three years, and Mr. J. O. W. Bland, Jesus College, to a second studentship for one year.

Mr. Basil Graves is to give an address on the Surgery of Senile Cataract at the thirty-first annual congress of the American Academy of Ophthalmology and Oto-Laryngology, which opens on Sept. 13th at Colorado Springs.

Dr. Karl Henschen, who has been appointed to succeed the late Prof. Hotz in the Chair of Surgery at the University of Basle, is surgeon to the Cantonal Hospital at St. Gall with the title of Professor at the University of Zurich.

PRINCESS MARY AT HARTLEPOOL HOSPITAL.—On August 11th Princess Mary opened a new wing of this hospital named the Morison Wing, in honour of the late Dr. A. E. Morison, an energetic worker for the institution. The new building has cost £10,000.

THE LAENNEC CENTENARY.—On August 12th the hundredth anniversary of the death of Laënnec was celebrated at his native village of Ploaré, Finistère, Brittany. The French medical profession was strongly represented and a panegyric was delivered in Ploaré church. Next December the centenary will be celebrated in Paris.

Messrs. Chapman and Hall have been preparing a book on "The Theory and Practice of Radiology," by Dr. Bernard Leggett, but owing to a recent fire at the Whitefriars Press the whole work, almost completed, has been destroyed, and it will therefore be some months before it can be published.

THE LATE DR. W. A. M. GARRY.—Dr. William Alfred MacMahon Garry, who died at his home in Liverpool on August 7th at the age of 62, was an Irishman by birth and studied medicine at Queen's College, Galway, and at the Catholic University, Dublin. Before settling in Liverpool, where he practised for 40 years, he was a resident in the Coombe Lying-in Hospital, Dublin, and assistant medical officer at the Salford Hospital. Dr. Garry was especially well known to the Roman Catholic community and much of his time and professional skill was given to charitable causes. He was hon. physician to the House of Providence, Aigburth, and visiting physician at the Priory, Allerton, a home for feeble-minded and mentally defective children.

THE CAUSATION OF GOUT.—The 115th annual report of the Devonshire Hospital and Buxton Bath Charity covers the period from Jan. 1st, 1925, to March 31st, 1926. The report of the bacteriological department states that numerous determinations of the amount of calcium in the blood serum of gout cases were made, and that the results showed quite definitely that "there is no association of hypercalcæmia with uncomplicated gout"—the direct opposite of the results obtained in the small Bath series of Coates and Raiment. It is suggested that some other factor, possibly connected with the parathyroid, accounted for the abnormal values obtained in the Bath series. The blood analyses of gout cases indicate that, with the exception of certain nephritic cases, the carbonic acid content of the plasma in gout is not abnormally low and that a general lack of base in the circulating blood cannot be a factor in the deposition of uric acid in the tissues. A special report is being prepared.

THE LATE DR. K. C. GIMSON.—Dr. Karl Carwardine Gimson, of Witham, who died suddenly on August 3rd, was a son of the late Dr. Gimson Gimson, of Witham, and was born in 1866. He received his medical education at Cambridge and St. Bartholomew's Hospital, graduating at Cambridge in 1891. After making several voyages to the Far East as ship's surgeon he joined his father in practice. When his father died 26 years ago Dr. K. C. Gimson, with one of his two medical brothers, took over the practice, which became very large. Whilst his brother was away at the war he carried on the work by himself, and, in addition to his ordinary duties, acted as medical officer to the temporary war hospital at Bridge Home. He was a keen sportsman, shooting, cricket, fishing, and golf being his principal recreations, and was a generous supporter of any kind of work for the benefit of his fellow-townsmen. Dr. Gimson was a bachelor.

MEDICAL REGISTRATION IN IRELAND.—An order has been made by the Executive Council of the Irish Free State continuing the existing arrangements for medical registration for the period of one month.

CENTENARY OF THE COOMBE LYING-IN HOSPITAL, DUBLIN.—The centenary of the Coombe Hospital will be celebrated from Tuesday, Sept. 14th, to Friday, Sept. 17th. Dr. Louis Cassidy is acting as hon. secretary and will be glad to send further information to those interested. His address is 6, Kildare-street, Dublin. We hope later to publish details of the programme.

RAILWAYMEN SUPPORT HOSPITALS.—The majority of the staff of the London, Midland and Scottish Railway, comprising about a quarter of a million workers, contribute 2*d.* per week to the L.M.S. Hospital Fund; this is deducted through the paybills. The directors of the company augment the sum by another 1*d.*, and a total amount of £136,000 was by these means contributed last year. The privileges of membership include admission to any hospital in the country for the member himself and for his wife and children. In addition, the railwaymen (of all companies) maintain seven convalescent homes of their own. The railway directors have now handed over the management of the fund to the staff, and on the committee of 13 they have only one representative.

THE LATE DR. O. J. CAREGAN.—Dr. Owen Joseph Caregan, who died on August 7th at his home in Ormskirk, was a native of Liverpool and studied at the Liverpool School of Medicine and at the University College. He qualified L.R.C.P. & S. Edin. in 1892, and was for a time junior house surgeon at Bootle Borough Hospital. After going as assistant to the late Dr. Walsh, of Ormskirk, he settled in that town and soon had a large practice there as well as in West Lancashire generally, being appointed surgeon to the Ormskirk Cottage Hospital, certifying factory surgeon, and medical referee to several assurance companies. He worked in the district for over 30 years, and although not in good health continued to practise up till the week of his death. Dr. Caregan was 64 years of age and leaves a widow.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, August 23rd, to SATURDAY, August 28th.—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E. Course in Diseases of Children. Lectures and demonstrations all day, and work available in all departments (second week).—QUEEN MARY'S HOSPITAL, Stratford, E. Course in Medicine, Surgery, and the Specialties. Lectures and demonstrations all day for two weeks in all departments. Operations. Further particulars from the Secretary of the Fellowship.

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-square, W.C.

TUESDAY, August 24th.—9 P.M., Mr. W. McAdam Eccles will open a discussion on When not to Operate for Hernia.

THURSDAY.—9 P.M., Mr. R. J. McNeill Love will open a discussion on the Treatment of Acute Appendicitis.

Appointments.

JONES, D. W., M.R.C.S., L.R.C.P. Lond., has been appointed one of the Medical Referees under the Workmen's Compensation Act for the County Courts Districts of Pocklington, Selby, Beverley, Bridlington, Goole, Great Driffield, Howden, and Kingston-upon-Hull.

SLOT, GERALD, M.D., M.R.C.P. Lond., D.P.H., Honorary Physician to the Royal Hospital, Richmond.

THIERENS, MILDRED M., M.B., Ch.B. Liverp., Asst. Medical Officer of Health for Maternity and Child Welfare, Batley.

WEST, B. A., M.D. Belf., D.P.H., Certifying Surgeon under the Factory and Workshop Acts for the Epperstone District of the County of Nottingham.

Vacancies.

For further information refer to the advertisement columns.

Birkenhead and Wirral Children's Hospital, Woodchurch-road.—H.S. £100.

Birmingham, Queen's Hospital.—H.P. At rate of £70.

Bootle Borough Hospital.—Sen. M.O. and two Jun. M.O's. £150 and £125 respectively.

Bradford, Municipal General Hospital, St. Luke's.—H.P.'s and H.S.'s. Each at rate of £200.

Bridgend, Glamorgan County Mental Hospital.—Jun. Asst. M.O. £350.

Brighton, New Sussex Hospital, Windlesham-road.—H.S. At rate of £50.

Bristol General Hospital.—H.P.'s, H.S.'s, &c. Each at rate of £80.

Bristol Royal Infirmary.—H.P.'s, H.S.'s, &c. Each at rate of £80.

Bristol University.—Asst. to Professor of Surgery. £400.

Cardiff, Prince of Wales's Hospital.—H.S. £100.

City of London Hospital for Diseases of Heart and Lungs, Victoria-park, E.—Asst. Tuberculosis O. £600.

Edinburgh, Royal Mental Hospital, Morningside.—Asst. M.O. £350.

Essex, Administrative County of.—Asst. County M.O.H. £600.

Halifax County Borough.—Tuberculosis O. £650.

Infants Hospital, Vincent-square, Westminster.—Jun. Anæsth.

Leicester Royal Infirmary.—H.P. At rate of £120.

Leicestershire County Council.—County M.O.H. £1200.

Maidstone, Kent County Mental Hospital.—Asst. M.O. £300.

Manchester, Royal Children's Hospital, Gartside-street.—Asst. M.O. At rate of £150.

Manchester, Royal Children's Hospital, Pendlebury.—Res. M.O. At rate of £120.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Hon. Dental S.

Oxford, Radcliffe Infirmary and County Hospital.—H.P. and Cas. H.S. Each at rate of £120.

Poplar Hospital for Accidents, East India Dock-road, Poplar, E.—Second Res. O. £175.

Queen's Hospital for Children, Hackney-road, E.—P. for Skin Dept. Also H.P. and H.S. Each at rate of £100.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.

St. Mary's Hospital, W.—Asst. M.O. for X Ray Dept.

Sheffield University (Dept. of Pathology).—Asst. Bacteriologist. £300.

Sydney University, New South Wales, Australia.—Professorship of Psychiatry. £1100.

Taunton Rural District, &c.—M.O.H. &c. £800.

West London Hospital, Hammersmith-road, W.—One H.P. and Two H.S.'s. Each at rate of £100.

Willesden General Hospital.—Cas. O. At rate of £120.

Wolverhampton and Staffordshire Hospital,—H.S. At rate of £150.

Worcester General Infirmary.—Jun. Res. M.O. £120.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Burntisland (Fifeshire), and Tibshelf (Derbyshire).

Births, Marriages, and Deaths.

BIRTHS.

BEAUMONT.—On August 11th, at Welbeck-street, the wife of Dr. Beaumont, of Swains-lane, Highgate, of a son.

COOK.—On August 11th, at "Marven," Uplyme, Lyme Regis, the wife of Dr. P. N. Cook, of a daughter.

CRANSTOUN.—On August 12th, at Perry Hill, Worplesdon, the wife of Dr. G. Cranstoun, of a son.

DUFFUS.—On August 7th at a nursing home, Aberdeen, the wife of Dr. Allan A. Duffus, Gilling Lodge, Watford, Herts, of a son.

FLEMING.—On August 9th, at Red House, Staines-road, Bedfont, Middlesex, Dr. Muriel Fleming, the wife of Dr. Arthur Fleming, of a son.

MARSHALL.—On August 7th, at The Grove, Heacham, Norfolk, the wife of Philip Sydney Marshall, M.R.C.S., D.P.H., of a daughter.

MARRIAGES.

NOAKES—GERARD.—On July 21st at The Oratory of the Sacred Heart, Bournemouth, by the Rev. Joseph Flynn (with Nuptial Mass), Basil Henry Noakes, of The Rest, Brockenhurst, to Mary Josephine Gerard (Minnie), of Devonshire House, Bournemouth.

ROWAND—NAISMITH.—On August 4th, at the Parish Church, Fortingal, Andrew Rowand, M.D., James Mackenzie Institute, St. Andrews, to Edith Mary, widow of W. J. Naismith, M.D., D.S.O., and youngest daughter of the late Prof. W. R. Sanders, Edinburgh University.

DEATHS.

CALLENDER.—On August 14th, at Inverard, Sidcup, Kent, Thomas Marshall Callender, M.D., F.R.C.S.E., aged 52.

HARRIS.—On August 12th, at Frome, Andrew Harris, M.B.E., F.R.C.S.I., aged 63 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

INDEX TO "THE LANCET," VOL. I., 1926.

THE Index and Title-page to Vol. I., 1926, which was completed with the issue of June 26th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Notes, Comments, and Abstracts.

MEDICINE IN MEXICO.

BY FRANCES E. SMITH, M.R.C.S. ENG.

DURING a private visit to Mexico last year I saw a good deal of the condition of medical practice there, which may be worth describing.

The country has every kind of climate, from tropical on the coast to temperate further inland, and away from the populous areas it is very wild indeed. Though good medical advice is to be had in the towns it is usually unobtainable elsewhere. The best medical treatment is found in the capital, Mexico City, conditions in which I shall describe first.

Mexico City.

There are several hospitals, the most modern being the Cowdray Sanatorium, also known as the English Hospital. This is endowed by Lord and Lady Cowdray and was completed some three years ago. It is situated in beautiful and healthy country just outside the city and has accommodation for 50 patients. The equipment includes an isolation ward, laboratories, two theatres—one of them an obstetric theatre—and excellent quarters for the nursing staff. The matron is British and the nurses British or American. The Trust Deed provides for the appointment of a resident medical officer, but it was decided to do without one. All the patients are private cases; they are attended by their own doctors, and most of them have their own rooms or suites. Emergency cases are in the hands of the matron and her staff until the particular surgeon arrives. There are two wards for poor patients, the cost of whose maintenance is defrayed by societies. The charges for room and board vary from $6 Mex. a day for a bed in a common ward to $50 a day for a suite ($1 Mex. = 1 peso, worth about 2*s.*). The average charge is between $10 and $12 per day. The chief other hospitals are the American, the French, and three native hospitals, one of which is under the Red Cross. The American and French hospitals are in what were once large private houses, and the American has a pathological department which is at the disposal of practitioners. One of the native hospitals has been in existence since the time of Cortes who conquered Mexico in 1521.

Private practice is carried on in much the same way as in England. There are large numbers of Mexican doctors, graduates of the University of Mexico, many of whom have had European or American experience, are competent and have large practices. The foreigners are mostly American, but there are also English, French, German, and Spanish practitioners. The city has numerous good surgeons, specialists, and dentists. Fees are adjusted to the means of the patients. A prosperous business man pays $5 Mex. for a visit to the consulting-room and $10 if the doctor comes to the house. (These fees were paid to a well-known American practitioner, but I am told that Mexican doctors do not charge so much.) Foreigners generally go to a doctor of their own nationality. In comparing these fees with those in England it should be remembered that the cost of living in Mexico just now is roughly twice as high as in the United Kingdom. Mexico City is, moreover, a prosperous place and sometimes large sums are asked and given. A high official of a commercial company was charged $1500 Mex. by a foreign doctor for attending a case of typhoid. Advertising by members of the medical profession is common; it is chiefly done through the newspapers or by notices in hotels. Foreigners are required to take the examinations of the University of Mexico before being allowed to practise.

The Red Cross Society, supported by public subscription, seems to be well organised; it has its own hospital, and ambulances arrive promptly on the scene of an accident. I saw an aeroplane crash in a field well outside the city, and within five minutes there were present two ambulances and three carloads of police. A small boy was operated on at the hospital within 20 minutes of having his leg crushed in the street.

Health propaganda is carried on freely, and at times whole pages of the newspapers are devoted to suitable subjects, such as trachoma.

Charlatanism is rife. Chiropractors, osteopaths, naturopaths, and others are found everywhere. Their nationality varies; many have had to leave the United States and find in Mexico a lucrative field. They advertise in most of the periodicals and newspapers, and by means of pamphlets distributed in the streets.

Health of Poor People.

The native Mexican leads a very primitive life. He lives with his family in a shack of wood or leaves whose floor is the bare earth. His chief possessions are the clothes on his back, his blanket, a gun, a dog (starving and mangy), and a few chickens. The family has also some cooking utensils and a charcoal stove. Maize is grown around the hut, and beans and chiles from the local market complete the staple diet. The sunny climate makes this sort of life possible, but great hardships are undergone during cold or rainy weather.

Infant mortality is high. Although the average Mexican adores his children, the babies are fed unwisely on chiles, beans, hot sauces, and other adult food, much of which is greasy. As a result, they suffer so much from malnutrition and digestive disturbances that they are usually puny creatures, especially in the towns. Exposure to cold occurs during the rainy season (July to September), and sometimes during the winter months. The results are often disastrous, children, and even adults, being found dead after a cold spell. During these times the mortality from pneumonia is very high; the Mexican shows a very poor resistance to pneumonia and tuberculosis, and in Mexico City a common cold often ends in pneumonia, both amongst natives and foreigners.

Digestive troubles are very common everywhere. The chief cause is general over-eating of heavy rich foods, sweet things being much liked. Another cause is irregular eating; a walk through the streets is punctuated by small purchases of candies, pastries, and fruits, which are sold everywhere at little stalls.

Deformities of all kinds are seen. Most deformed people are beggars, and begging is a profession. It is said that babies are prevented from having treatment, and even deliberately deformed, in order to be made beggars, and I have seen the most extreme cases of all kinds—old infantile paralyses, Little's disease, spinal curvatures, and all forms of tuberculous deformities—such as are rarely to be found in England. Beggars are everywhere—in the streets, outside churches, and on the country roads. Many are unable to use crutches, and drag themselves along very efficiently on their knees and hands protected by guards of wood and leather. Most of them are well cared for and often their cotton clothes are spotlessly white. Blindness, scars, wounds, and amputation stumps are all exploited.

Rural Mexico.

San Luis Potosi, Monterey, Orizaba, and Tampico are the principal towns outside Mexico City itself, and the above remarks may be said in general to apply to them. There are few hospitals, however, in these towns and few in the "hot country," though Tampico has two and there are a certain number in connexion with industrial concerns. Private practice exists everywhere, and in the larger towns there are English and American doctors as well as Mexican. Malaria is common all along the coast and sometimes bad cases have to go up to Mexico City to obtain relief from the repeated attacks. Yellow fever occurs in the more southern regions, including the Isthmus of Tehuantepec and Yucatan, and typhoid is also very prevalent.

Snakes, tarantulas, and alacrans abound everywhere. Chiggers (sand fleas) cause a lot of trouble, the female penetrating under the skin of the foot or hand, especially at the nails, and producing intense irritation. Unless the patient is prepared to wait until the insect sloughs out, it is best removed by enucleation, which is often neatly done by native women, who fill up the hole left with tobacco ash.

The plain of Mexico on which the capital is situated is about 7500 feet above sea-level. The effects of the altitude on newcomers and inhabitants vary, but severe symptoms are uncommon, the most usual being drowsiness, headache, shortness of breath on exertion, nausea, and indigestion. A person usually experiences one or two of these symptoms on arrival, but they pass off after a few days. Rowing and football are very strenuous games at this altitude and races at a recent regatta were rowed over a shorter course than at home.

ILLUMINATION AND VISUAL ACUITY.

A COMMITTEE of the Medical Research Council is at work studying problems involving questions of vision. Their first task has been to publish an analysis of the more recent work upon the relation of illumination and visual capacities, prepared by Mr. R. J. Lythgoe (H.M. Stationery Office. 2*s.* 6*d.*). The works analysed are monographs by European or American writers, and their subjects include the influence of different intensities of illumination on visual acuity, the effect of varying the character of illumination on visual acuity, the discrimination of differences of brightness, adaptation as a factor in visual discrimination, the influence of lateral illumination including "glare" on visual judgments, the speed of retinal impression, the influence of illumination on the discrimination of colours, and lastly visual fatigue. The utility of the brochure consists in its concise summaries of recent work on all these subjects and a good bibliography. Its avowed object is not to present a final pronouncement on any of these subjects but to afford help to other workers.

MEDICAL ENGLISH.

EVERY year the English and American vocabulary is enlarged by the addition of many new words. Those conceived in popular nuptials and brought to birth as slang are plunged at once into the stream of everyday speech; the strongest win through, and if they live they live because they convey ideas not hitherto expressible so exactly—their utility, as much as their terseness saves them, but they perish (*T.D.L.*) when laziness and vacuity employ them in and out of season. But unfortunately not every new word has to go through the tests to which slang is subjected. The offspring of scientific brains are usually nursed from childhood in the enervating atmosphere of the printed page; their first plunge into public life is made in the Turkish bath of a learned society; but, no whit discouraged by the weedy growth of these semi-classical terms, their parents are urged by the fervour of procreation to subsequent efforts.

Now any word has merit if it is short, easy to say, and really needed. On the other hand, brevity is not everything, and there is a real advantage in calling diseases or operations by names of Greek or Latin derivation because such names are descriptive, and their messages can be read by anyone of any nation having the necessary familiarity with a smattering of these dead languages. But such descriptive words must be exact. If they are carelessly put together, or "telescoped," or misspelt, they become unintelligible to scholar and Philistine alike, and a source of pain to both. Ornate and useless articles of clothing are going out of fashion; ornate architecture is not as popular as it has been; is it too much to hope that scientific language can be cleansed of its circumlocutions and made into a simpler medium for expressing facts? This can only be done if individuals apply to their sentences the same tests of relevance as they apply to signs and symptoms and laboratory phenomena; it can only be done if the full meaning of words is understood, and it can only be done, therefore, by the free use of medical dictionaries. Fortunately these can easily be got and presumably they are more and more employed, for we note with pleasure that the one written by Dr. T. L. Stedman has now reached its eighth edition.[1] It was compiled by him in the leisure hours of a busy life as practitioner and editor, and it is a useful guide to the writing and reading of English. Dr. Stedman deplores the fact that "only a small percentage of even well-educated physicians of the present day can read the Greek characters," and registers his conviction that the elimination of Greek in schools has done much to barbarise the language of medicine and to make special medical dictionaries necessary. He has yielded so far as to give the Greek words in Roman letters—a practice which it is hard to approve, since Greek words, however spelt, are not likely to convey much to those who know no Greek, whilst their familiar look is lost to those who might otherwise remember them. The general use of "c" instead of "k" to represent the Greek kappa—as in leucæmia (leukæmia)—can certainly be justified in itself, but there seems to be no reason for going on to pronounce the word as though the "c" were an "s," as Dr. Stedman recommends. This needlessly takes the word further away from its origin, as also—some would say—does the abolition of diphthongs which he approves because it is a simplication in accord with the Italian and Spanish derivatives of Latin. He would have us write "hemorrhage" and "edematous," just as we write "equal" and "economy"; but it is possible to reply that all four are regrettable if they lead to the original meanings and affinities being forgotten. These, however, are little more than questions of taste; what is really important is that in Dr. Stedman's dictionary we have a book which tells the reader and the writer the meaning of words and which commends the truer and purer forms. The more general use of such books would go far to promote the writing of good scientific English.

[1] A Practical Medical Dictionary. By T. L. Stedman, A.M., M.D. London: Baillière, Tindall and Cox. 1925. Pp. 1134. 35s.

"A HASTY GENERALISATION."

To the Editor of THE LANCET.

SIR,—I read the note in THE LANCET this week with the above title with much interest. I think when the National Insurance Acts turned the medical practitioner into a Government official much was done to destroy the human touch which used to mark the relations between the doctor and his poorer patients. In the war nurses and doctors saw death on such a large scale they became hardened; after the war unfortunate elements blended, and produced a spirit which is, alas, not confined to any one profession. On all sides we see selfishness, a love of pleasure, a love of money, a lack of the spirit of self-sacrifice, which cause a feeling of resentment in many who remember better days. The old-fashioned doctor and nurse may have lacked something in skill, but that lack was more than supplemented by a sympathetic interest in the patient—a human element too often lacking to-day.

There is a further adverse element at work—i.e., a decline in religious belief; not without reason were the religious and medical professions closely related in the past, but they are largely divorced to-day. I am inclined to think that the "hasty generalisation" is often a possibly unconscious revolt against this divorce. It is not the duty of the doctor to preach, but when psycho-analysis shows the trouble to be mental rather than physical, the old-fashioned doctor with his hearty, "Trust in God, madame. He knows best," brushed away many a shadow, which the rather hopeless, "hard luck," or the superstitious "touch wood" of the irreligious modernist does little to relieve.

As I go here and there I find a deep yearning for a word of sympathy, for the modern rush has eliminated the time required for the courtesies of life. And we are the poorer for this. In the United States for many years there has been a selfish materialism united with a worship of the Almighty Dollar, but only lately has this evil spirit invaded England. Our sick appreciate a word of comfort from doctor or nurse, and resent the loss of it; but I fear under modern conditions they must resign themselves to that loss.

The National Insurance Acts, the war, and the lack of religion have smashed sympathy and real self-sacrifice—for the present at least.—I am, Sir, yours faithfully,

August 16th, 1926. LOOKER ON.

A REGISTERED NURSES' BUREAU.

A SCHEME has been organised to promote the interests of private nurses upon a plan which is already in existence in the United States. Under the scheme the nurse pays a subscription of 3 guineas a year and a nominal registration fee of 2*s.* 6*d.*; only State registered nurses are eligible, and they will be registered on a general or a supplementary list, the latter implying allocation only to some particular branch of nursing. The subscription does not run until employment is found for the nurse, the registration fee securing a place on the waiting-list. In order to be on the register a nurse must fill in an application form, enclosing her State certificate and proofs of training, while she is invited to give a very detailed personal account of herself in other ways. The Bureau is a limited liability company with an honorary advisory committee of well-known medical men; the registrars are fully-trained and registered nurses. Any nurse wishing to obtain an application form should write to Mr. Alfred Rose, the managing director of the Bureau, at 55, Chancery-lane, London, W.C.

TRAVEL IN FRANCE.

THE Directors of the Office Français du Tourisme (56, Haymarket, London, S.W. 1) write to say that, contrary to current rumour, no new or special taxes have been as yet levied on foreign visitors to France. Existing taxes have, however, been increased to some extent. The cost of the Identity Card has been raised from 68 to 375 francs, but as this card need only be obtained after a two months' stay it does not affect the tourist. The cost of the Laisser Passer for motor-cars has been increased from 2·50 to 10 francs per day. The increase of 30 per cent. in the price of passenger tickets which came into force on August 16th will not make much difference in the total fare for continental travellers from Great Britain.

OVER-SIZE BABIES.

To the Editor of THE LANCET.

SIR,—One of my patients, a woman of 35, has had three children weighing respectively 10, 10¼, and 11½ lb. She is rather undersized and slender and her husband is also undersize and weighs less than 10 st. I have looked up many authorities and can find no reference to the prevention of a repetition of these, which naturally she dreads. She is very active and is a small eater. Perhaps you or some of your readers could help me. Probably it is a matter of diet. I am, Sir, yours faithfully,

August 16th, 1926. P. J. B.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 7TH, 1926.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 60 (last week 66); scarlet fever, 1045; diphtheria, 756; enteric fever, 36; pneumonia, 318; puerperal fever, 35; cerebro-spinal fever, 5; acute poliomyelitis, 20; acute polio-encephalitis, 4; encephalitis lethargica, 34; continued fever, 1; dysentery, 7; ophthalmia neonatorum, 99. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox, 5 (0) from enteric fever, 13 (3) from measles, 2 (0) from scarlet fever, 16 (1) from whooping-cough, 26 (7) from diphtheria, 68 (15) from diarrhœa and enteritis under 2 years of age, and 19 (2) from influenza. The returns for diarrhœa and enteritis show a small drop from those of the previous week. The figures in parentheses are those for London itself.